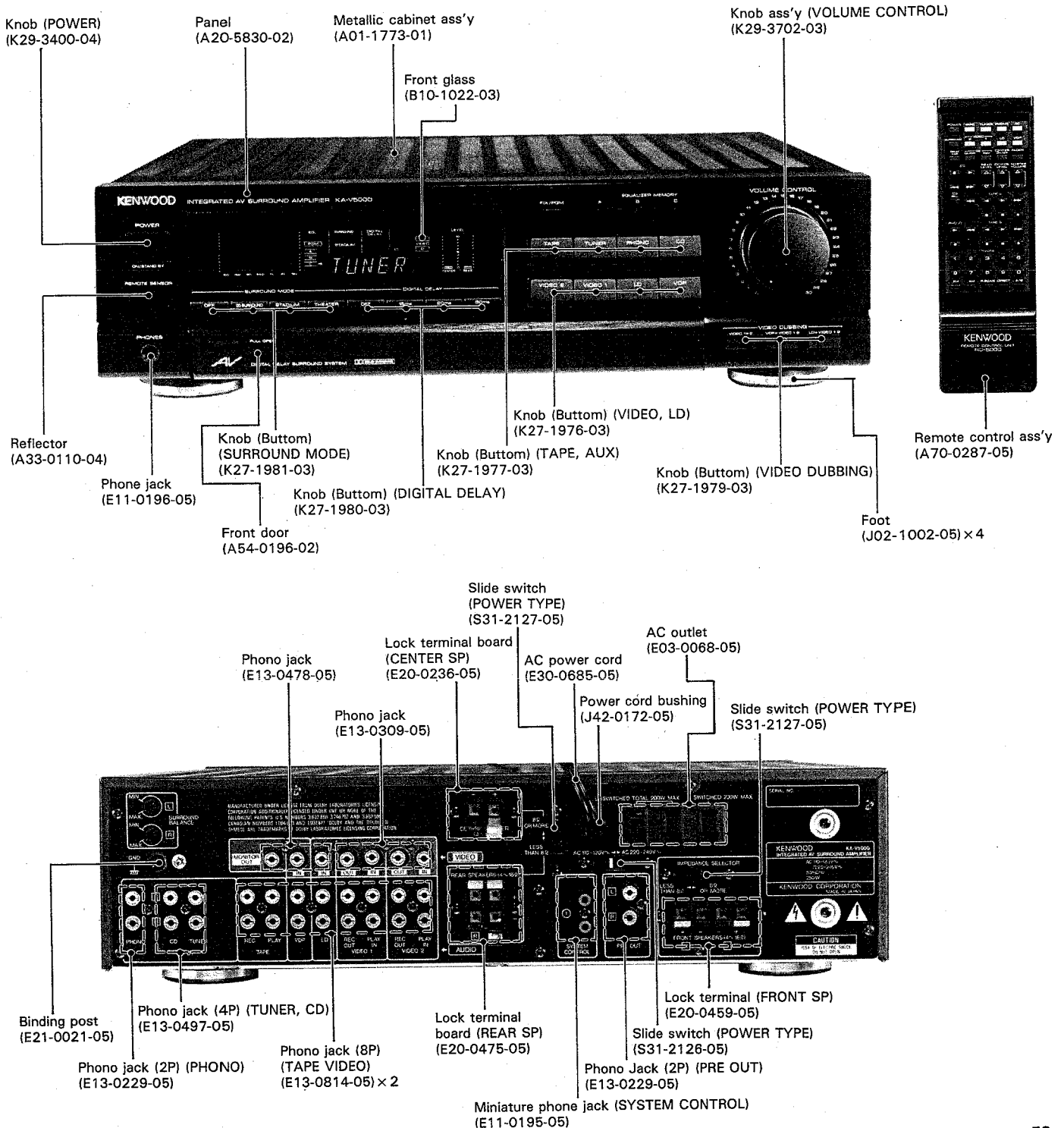


INTEGRATED AV SURROUND AMPLIFIER
KA-V5000
 SERVICE MANUAL

KENWOOD

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 B51-3670-00(T)588



* Refer to parts list on page 53.

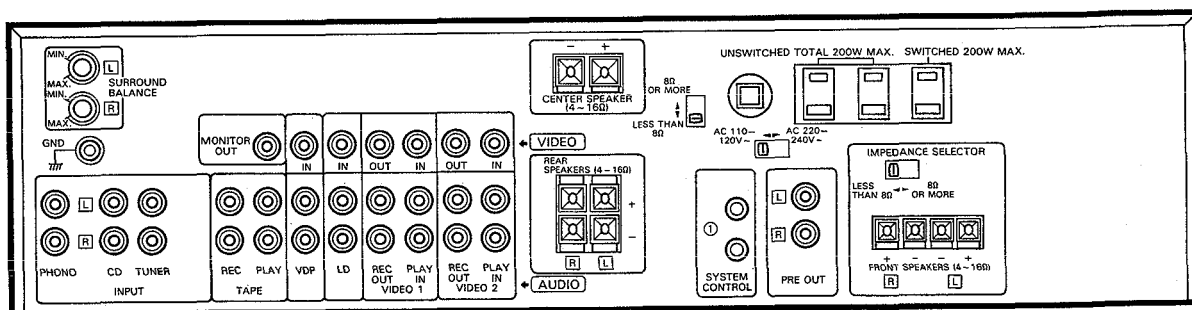
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CONTENTS/CONTROLS AND INDICATORS

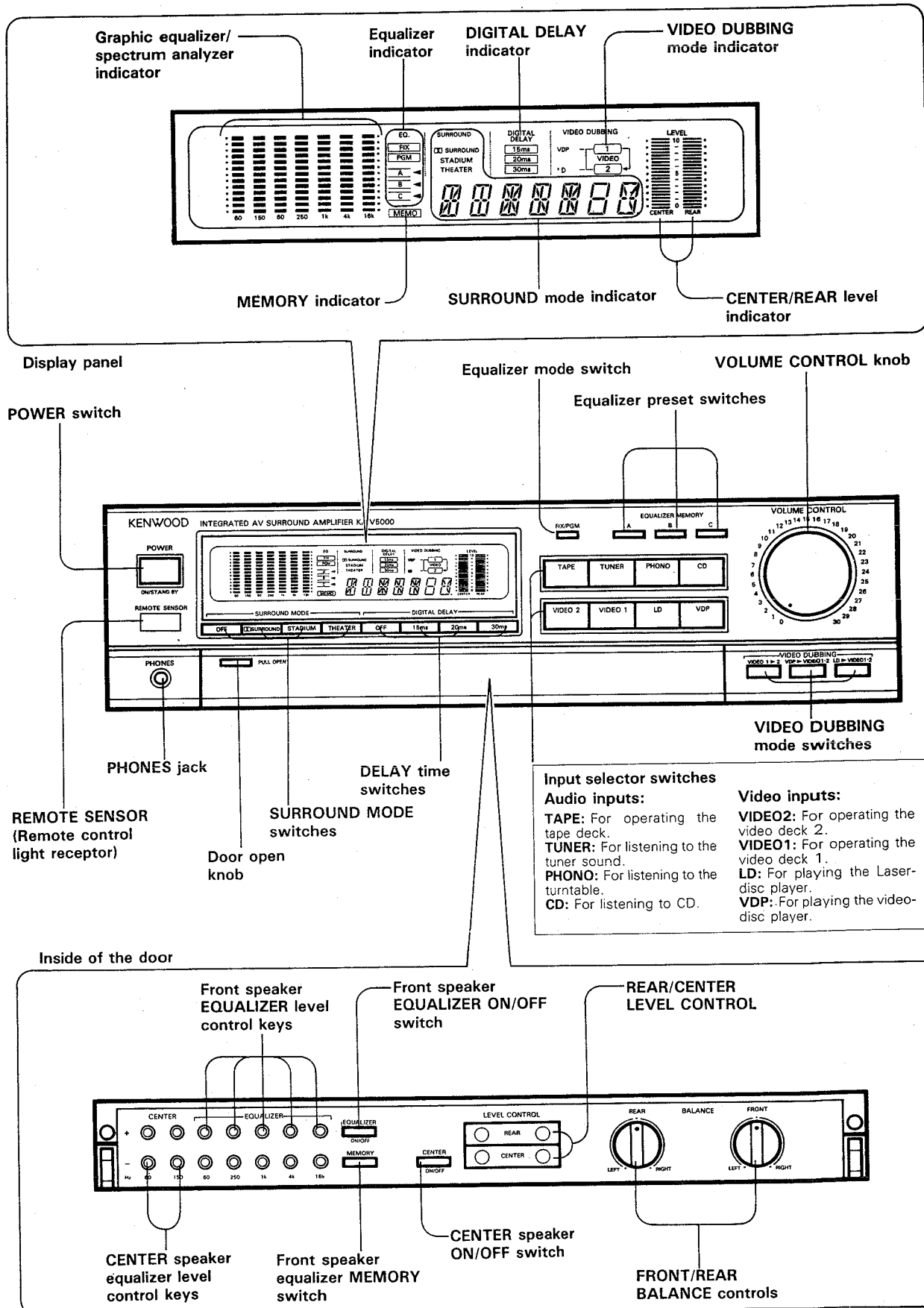
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CONTROLS AND INDICATORS



CONTROLS AND INDICATORS



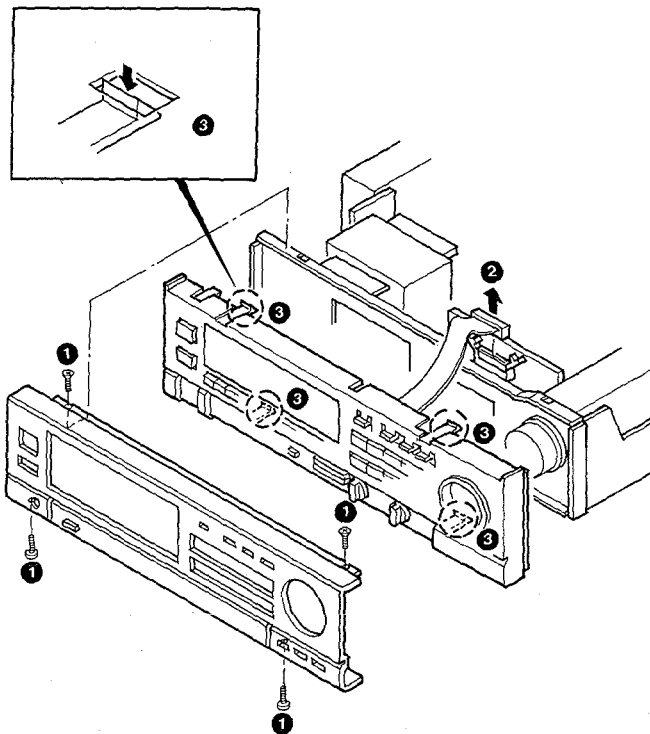
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DISASSEMBLY FOR REPAIR

● Removing the front section

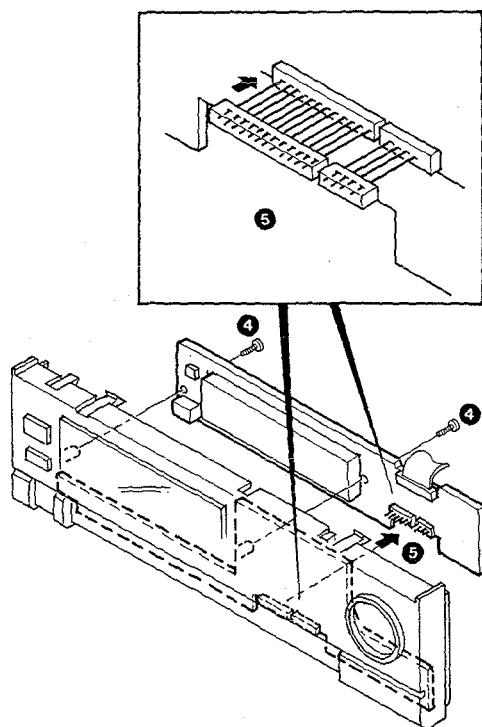
* Take out the case beforehand.

1. Remove the four screws (1), and detach the panel.
2. Disconnect the flat cable (2).
3. Undo the four catches (3), and detach the sub panel.



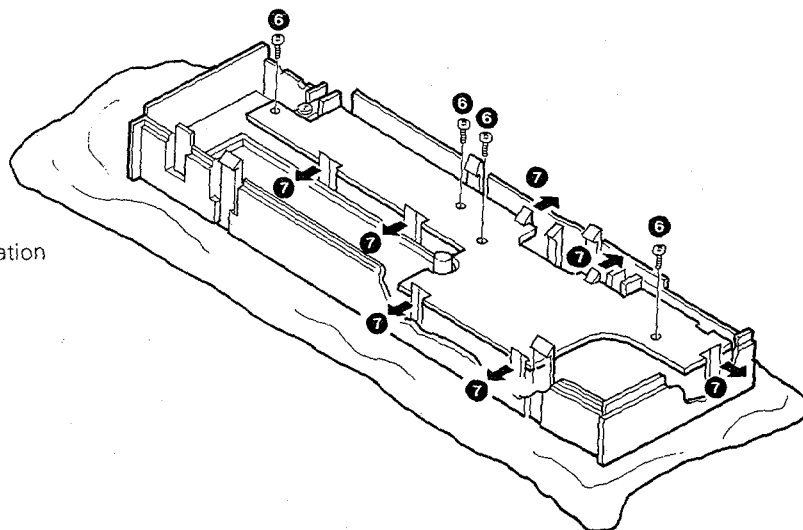
4. Remove the two screws (4).

5. Disconnect the connector, then take out the display section board (5).



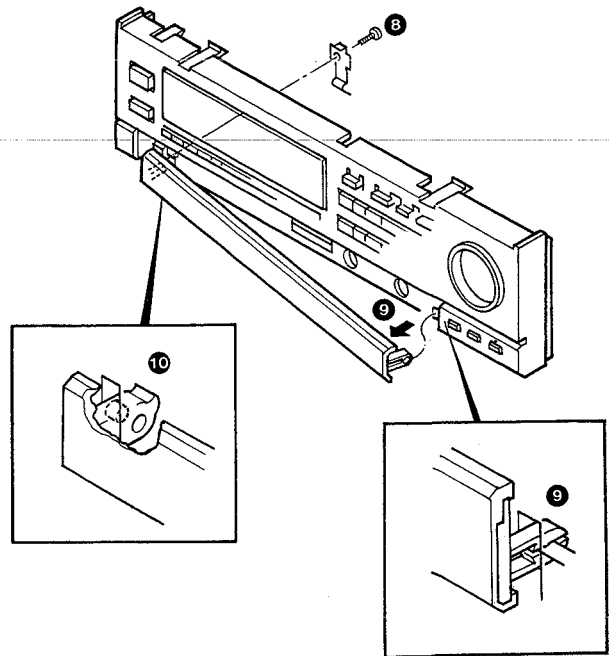
6. Remove the four screws (6).

7. Undo the seven catches (7), then take out the operation section board.



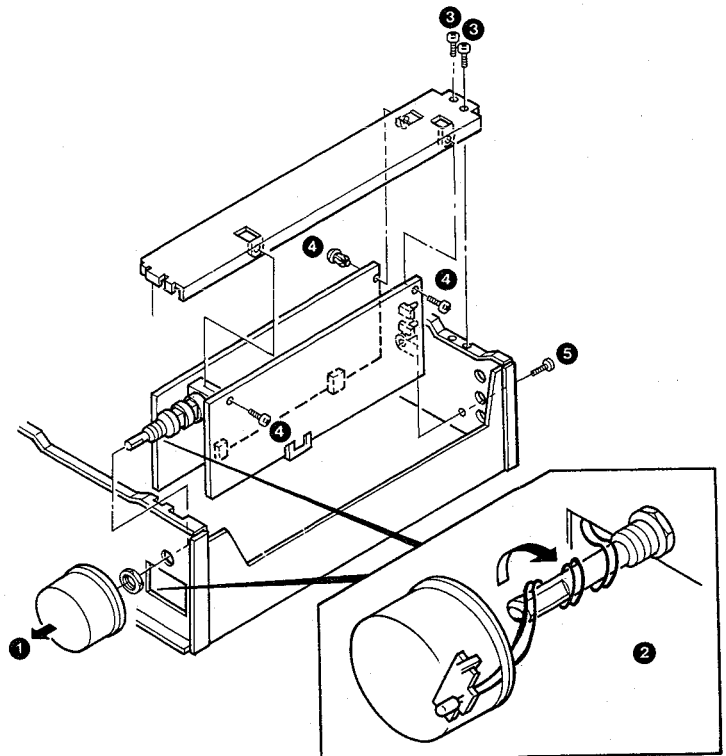
DISASSEMBLY FOR REPAIR

8. Remove the screw (8), and detach the flat spring.
9. First, release the right side of the door (9).
10. Then, release the left side of the door, and detach the door (10).



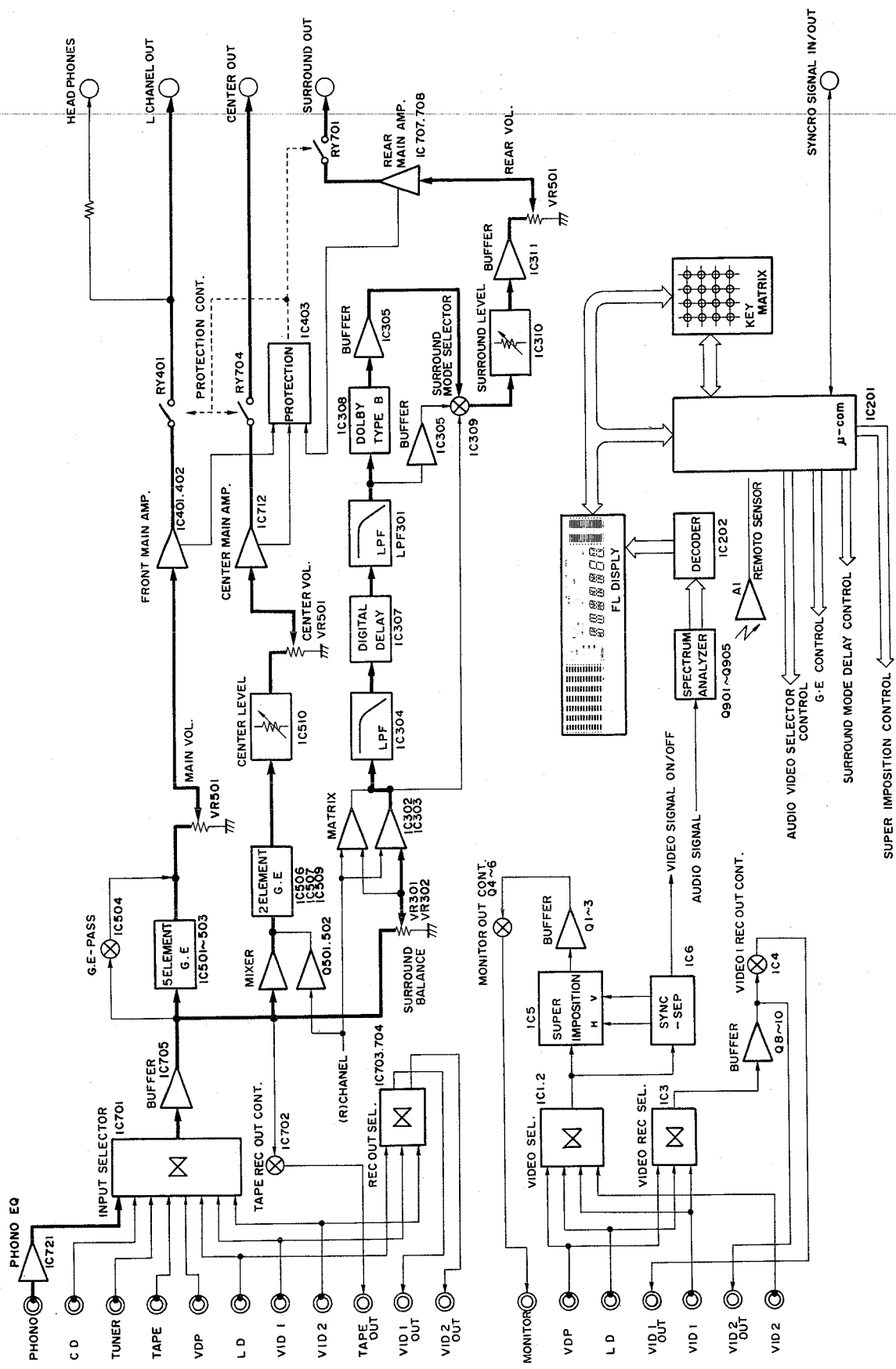
● Removing the volume board

1. Pull off the volume control knob (1).
- Note:** There is an LED put in inside the knob. Undo its catch and take out the LED board.
2. Handling method of lead wire of LED board (2).
As shown on the right, make three turns of the LED lead wire on the shaft, then attach the knob.
3. Remove the two screws (3) of the fixture.
4. Remove the one push rivet and two screws (4).
5. Remove the one screw (5) in the rear.
6. Take out the board.



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BLOCK DIAGRAM



CIRCUIT DESCRIPTION

DESCRIPTION OF COMPONENTS

Main amplifier unit (X07-2480-81)

Component	Name	Use/Function	Operation/Condition/Compatibility
IC301	NJM4558D-A	Buffer IC	Rear matrix buffer amplifier
IC302	NJM4558D-A	Buffer IC	Rear delay line mixer
IC303	NJM4558D-A	Buffer IC	Rear "STADIUM" mode amplifier
IC304	NJM082D	L.P.F.	Digital delay input L.P.F.
IC305	NJM4558D-A	Buffer IC	DOLBY SURROUND buffer amplifier
IC306	NJM4558D-A	Buffer IC	Electric volume (Rear level) buffer amplifier
IC307	YM3411	Digital delay IC	Delay circuit (15 ms, 20 ms, 30 ms)
IC308	NE645N	Dolby IC	Dolby circuit (Type-B)
IC309	NJU4052BD	Switching IC	SURROUND mode select switch
IC310	TC9154AP	Volume IC	Rear level adjustment
IC311	NJM4558D-A	Buffer IC	Rear amplifier output buffer
IC312	μ PC78L05J	AVR	+ 5 V
IC313	μ PC79L05J	AVR	- 5 V
IC401	μ PC1298V	Driver IC	For power drive (Front L channel)
IC402	μ PC1298V	Driver IC	For power drive (Front R channel)
IC403	μ PC1237HA	Protection IC	All channel protection
IC404	μ PC7805HF	AVR	+ 5 V
Q301,302	2SA733(A)(Q,P)	Switching	IC309 control switching Tr. 2SA933S(Q,R)
Q303,304	DTC124EN	Switching	IC309 control switching Tr.
Q401,402	2SC2878(B)	Switching	Front amplifier muting
Q403,404	2SD414	Temperature compensation	Idle current adjustment for power amplifier
Q405	2SC3280 *5	Power Tr.	Front power transistor (L channel)
Q406	2SC3280 *5	Power Tr.	Front power transistor (R channel)
Q407	2SA1301 *5	Power Tr.	Front power transistor (L channel)
Q408	2SA1301 *5	Power Tr.	Front power transistor (R channel)
Q409,410	2SC2631(R,S)	Over current detector	For protection circuit (Front amplifier)
Q411	2SA992(F,E)	Over current detector	For protection circuit (Front amplifier)
Q413	2SC1740S(Q,R)	Switching	Relay drive for AC OUTLET 2SC945(A)(Q,P)
Q414	2SD1266(Q,P)	Switching	Relay drive for AC OUTLET
Q415	2SB941(Q,P)	AVR	- 30 V

Audio unit (X09-2890-81)

Component	Name	Use/Function	Operation/Condition/Compatibility
IC701	TC9163N	Selector switch	Audio input selector
IC702	LC4066BH	Switching IC	TAPE REC enable switch
IC703	LC4066BH	Switching IC	Audio REC OUT selector (L channel)
IC704	LC4066BH	Switching IC	Audio REC OUT selector (R channel)
IC705	NJM4558D-A	Buffer amplifier	
IC706	μ PD74HC239C	Switching IC	For video selector control
IC707	μ PC1225H	Power amplifier	Rear main amplifier driver (R)
IC708	μ PC1225H	Power amplifier	Rear main amplifier driver (L)
IC709	μ PC7812HF	AVR	+ 12 V
IC710	μ PC7815HF	AVR	+ 15 V
IC711	μ PC7915HF	AVR	- 15 V

CIRCUIT DESCRIPTION

Component	Name	Use/Function	Operation/Condition/Compatibility
IC712	μPC1225H	Power amplifier	Center channel amplifier driver
IC713	NJM4558D-A	Buffer IC	CD input buffer
IC714	NJM4558D-A	Buffer IC	TUNER input buffer
IC716	NJM4558D-A	Buffer IC	TAPE input buffer
IC717	NJM4558D-A	Buffer IC	VDP input buffer
IC718	NJM4558D-A	Buffer IC	LD input buffer
IC719	NJM4558D-A	Buffer IC	VIDEO1 input buffer
IC720	NJM4558D-A	Buffer IC	VIDEO2 input buffer
IC721	NJM4558D-A	Buffer IC	PHONO EQ input buffer
Q701	DTA114ES	Switching Tr.	For IC702 control
Q702	2SA733(A)(Q,P)	Switching Tr.	For IC703, 704 control 2SA933S(Q,R)
Q703	DTC124EN	Switching Tr.	For IC702 control
Q704	DTC124EN	Switching Tr.	For IC703, 704 control
Q705	DTC124EN	Switching Tr.	For IC702 control
Q706~708	DTC124EN	Switching Tr.	For IC703, 704 control
Q709	DTA114ES	Switching Tr.	For IC703, 704 control
Q710	2SA733(A)(Q,P)	Switching Tr.	For IC703, 704 control 2SA933S(Q,R)
Q711,712	2SC2878(B)	Mute	Rear amplifier muting Tr.
Q713,714	2SD414	Temperature compensation	Rear amplifier idle current adjustment
Q715,716	2SD613*1	Power Tr.	For rear amplifier power transistor
Q717,718	2SB633*1	Power Tr.	For rear amplifier power transistor
Q719,720	2SC1845(F,E)	Over current detector	For protection circuit detector
Q721	2SA733(A)(Q,P)	Switching Tr.	Mute control 2SA933S(Q,R)
Q722	DTC124EN	Switching Tr.	Mute control
Q723	2SC2878(B)	Mute	Center amplifier mute transistor
Q724	2SD414	Temperature compensation	For center amplifier idle adjustment
Q725	2SD613*1	Power Tr.	For center amplifier power transistor
Q726	2SB633*1	Power Tr.	For center amplifier power transistor
Q727	2SC1845(F,E)	Over current detector	For protection circuit detector

Video control unit (X14-2490-81)

Component	Name	Use/Function	Operation/Condition/Compatibility
IC1	TA7348P	Selector IC	VIDEO signal selector
IC2	TA7347P	Selector IC	VIDEO signal selector
IC3	TA7348P	Selector IC	VIDEO REC OUT selector
IC4	LA7019	Switching IC	VIDEO1 REC OUT enable switch
IC5	MB88323A-K2	Super impose IC	MB88323A-K1
IC6	LVA516	Sync. separation IC	V-sync, H-sync
IC501	M5227P	G.E. amplifier	L channel amplifier (60 Hz-16 kHz)
IC502	M5227P	G.E. amplifier	R channel amplifier (60 Hz-16 kHz)
IC503	LC7522	Electric volume	G.E. control
IC504	LC4066BH	Analog switch	G.E.-pass switch
IC505	LB1630	Driver	Motor drive (For volume control)
IC506	NJM4558D-A	G.E. amplifier	Center channel amplifier (60 Hz, 150 Hz)
IC507	NJM4558D-A	Buffer	Center G.E. buffer
IC508	NJM4558D-A	Buffer	Electric volume buffer

CIRCUIT DESCRIPTION

Component	Name	Use/Function	Operation/Condition/Compatibility
IC509	TC9170AP	Electric volume	Center G.E. control
IC510	TC9154AP	Electric volume	Center level adjustment
IC511	NJM4558D-A	Buffer	For front signal
IC512	μ PC78L06J	AVR	+6 V
IC901	NJM4558D-A	BPF	For spectrum analyzer display (60Hz, 250Hz)
IC902	NJM4558D-A	Buffer	Spectrum analyzer display amplifier
IC903	NJM4558D-A	BPF	For spectrum analyzer display (1KHz, 4KHz)
IC904	NJM4558D-A	BPF	For spectrum analyzer display (16KHz)
IC905	NJM4558D-A	BPF	For spectrum analyzer display (60Hz, 150Hz)
Q906	TA78L006AP	AVR	+6 V (V _{REF})
Q1 ~ 3	2SC1740S(Q,R)	Video amplifier	Monitor output buffer 2SC945(A)(Q,P)
Q4	2SC1740S(Q,R)	Switch Tr.	Video signal ON/OFF 2SC945(A)(Q,P)
Q5	2SA733(A)(Q,P)	Switch Tr.	Video signal ON/OFF 2SA933S(Q,R)
Q6	2SC1740S(Q,R)	Switch Tr.	Video signal ON/OFF 2SC945(A)(Q,P)
Q7	2SC1740S(Q,R)	Switch Tr.	For IC4 control 2SC945(A)(Q,P)
Q8 ~ 10	2SC1740S(Q,R)	Video amplifier	Video REC OUT buffer 2SC945(A)(Q,P)
Q11	2SA733(A)(Q,P)	Switch Tr.	For IC4 control 2SA933S(Q,R)
Q12	2SC1740S(Q,R)	Buffer	Video REC OUT buffer 2SC945(A)(Q,P)
Q13	2SC1740S(Q,R)	Buffer	Monitor out buffer 2SC945(A)(Q,P)
Q14	2SK364(GR,BL)	Buffer	Monitor out buffer
Q15	2SC1740S(Q,R)	Detector	V-sync. 2SC945(A)(Q,P)
Q501,502	2SC1740S(Q,R)	Buffer	Center channel mixer 2SC945(A)(Q,P)
Q503	2SA733A(Q,P)	Switch Tr.	G.E. ON/OFF control 2SA933S(Q,R)
Q504,505	DTC124EN	Switch Tr.	G.E. ON/OFF control
Q506,507	2SC1740S(Q,R)	Flip-Flop	LED winker (For volume knob) 2SC945(A)(Q,P)
Q903,904	2SC1740S(Q,R)	Buffer	L, R channel mixer 2SC945(A)(Q,P)

Display unit (X25-3610-81)

Ref. No.	Name	Use/Function	Operation/Condition/Compatibility
IC201	μ PD75206CW-104	Microprocessor	
IC202	LC7565	Decoder	For spectrum analyzer/G.E. display
IC203	PST529C	Reset	For IC201 reset
IC204	TC74HC123P	Reset	For video signal reset
Q201	2SC1740S(Q,R)	Switch	For reset signal inverter 2SC945(A)(Q,P)
Q202	2SD882(Q,P)	Reset switch	For FL display (– 30 V reset circuit)
Q203	2SC1740S(Q,R)	Reset switch	For FL display (– 30 V reset circuit) 2SC945(A)(Q,P)
Q204	2SA733(A)(Q,P)	Reset switch	For FL display (– 30 V reset circuit) 2SA933S(Q,R)
Q205	2SA992(F,E)	Reset switch	For FL display (– 30 V reset circuit)

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CIRCUIT DESCRIPTION

IC6: LVA516 (X14-2590-81) SYNC SEPARATION

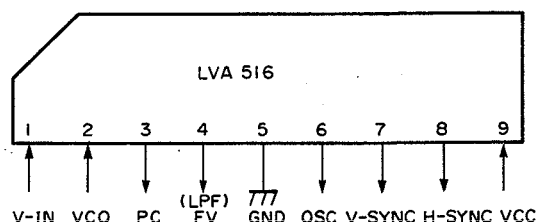
Outline:

When the video signal is input to pin 1 (V-IN), the VCO that is performing free-run oscillation (around 15 kHz) inside is locked with the horizontal sync signal (15.73 kHz) of the input video signal by a PLL circuit.

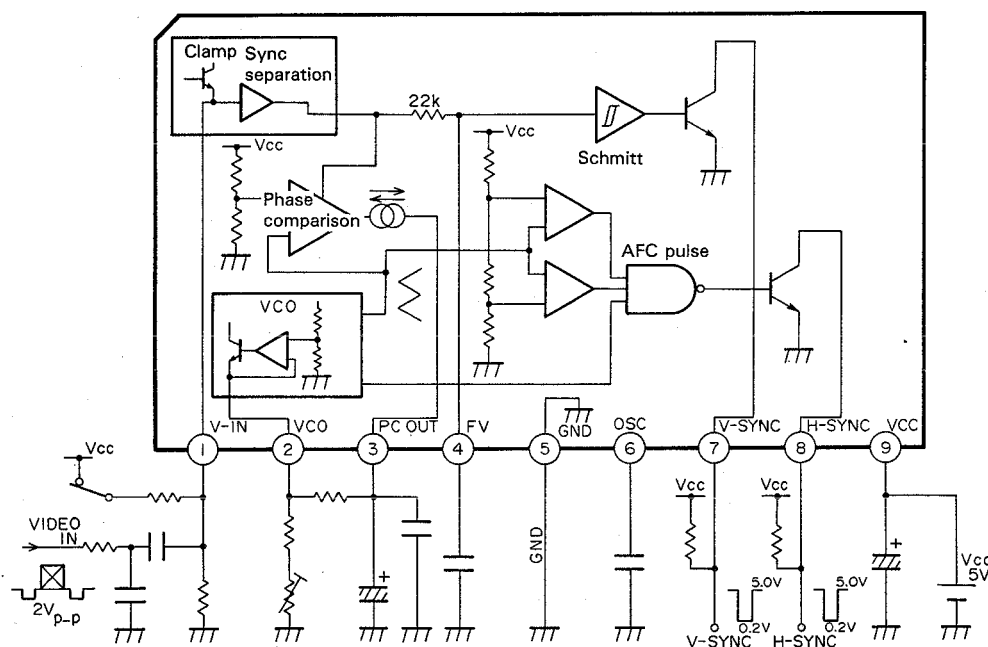
At this time, when the oscillation frequency of the VCO is away around ± 1 kHz from 15.73 kHz, the VCO cannot be satisfactorily locked with the input, so that there occurs disturbed display of characters (superimposed) with unstable sync.

From pins 7 (V-SYNC) and 8 (H-SYNC) are output respectively the vertical sync and horizontal sync signals, which are used as the reference sync signal for the superimpose IC. In addition, V-SYNC judges between the presence and absence of the video signal converted to DC to inform the judgement to the microprocessor. When the judgement is that no video signal exists, the superimpose IC produces a blue background (blue screen) inside.

Terminal connection diagram



Block diagram:



* Free-run frequency is adjusted by VR1 with SW1 ON. (15.73 kHz)

Pin functions

Pin No.	Name	I/O	Function
1	VIN	I	VIDEO INPUT
2	VCO	I	SYNC VCO. (15.73 kHz)
3	PC	O	PLL PHASE COMPARATOR OUT
4	FV	O	V-SYNC CHECK
5	GND	—	
6	OSC	O	TIMING CLOCK
7	V-SYNC	O	V-SYNC OUT
8	H-SYNC	O	H-SYNC OUT
9	Vcc	I	+5 V

CIRCUIT DESCRIPTION

The display output can be superimposed on the TV video signal or VTR output signal, and the superimposed picture can also be recorded onto a VTR.

(Top View)

The block diagram illustrates the internal architecture of the 6845 video display controller. Key components and their interconnections include:

- Input/Output and Control:**
 - Serial/Parallel Converter:** Receives SCLK (19), CS (18), and SI (17) signals.
 - 8-Bit Latch:** Receives data from the converter and outputs to the switch.
 - Switch:** Routes data between the latch and the command decoder.
 - Command Decoder:** Decodes commands and outputs control signals to various registers and the timing generator.
 - Reset (21):** A master reset signal for the entire chip.
 - Vcc (22) and Vss (11):** Power supply connections.
 - Test Signals:** Test1 (1) and Test2 (2) for diagnostic purposes.
- Registers and Counters:**
 - Vertical Position Register, Horizontal Position Register, and Vertical/Horizontal Character Size Register:** Store position and size data.
 - Display Memory Write Address Counter:** Manages write addresses for display memory.
 - Screen Control Register:** Controls screen-related functions.
 - Read Address Counter:** Manages read addresses for display memory.
- Control Logic and Timing:**
 - Vertical Position Control, Horizontal Position Control, and Vertical/Horizontal Character Size Control:** Generate control signals for the dot clock generator and timing generator.
 - Timing Generator:** Coordinates the timing of the display, receiving inputs from the character size control and the 8-bit shift register.
 - 8-Bit Shift Register:** Holds data for the display memory and character generator.
 - Blinking Control:** Manages the blinking of the display.
- Memory and Data Flow:**
 - Display Memory RAM:** Stores the display data.
 - Character Generator ROM:** Provides character patterns for the display.
 - Display Memory:** The final output of the display data, connected to the display control.
- Output and Timing Generation:**
 - Simplified Video Generator:** Generates the video signal, receiving inputs from the timing generator and the 8-bit shift register.
 - Video Superimpose:** Combines the video signal with other inputs (VIN, CLVL, BLVL) to produce the final output VOM (12).
 - Dot Clock Generator:** Generates the dot clock signal, receiving inputs from the vertical position control and the timing generator.
 - H SYNC/V SYNC Generator:** Generates horizontal and vertical sync signals.
 - Color Burst Clock Generator:** Generates the color burst clock signal.

CIRCUIT DESCRIPTION

Explanation of Pins

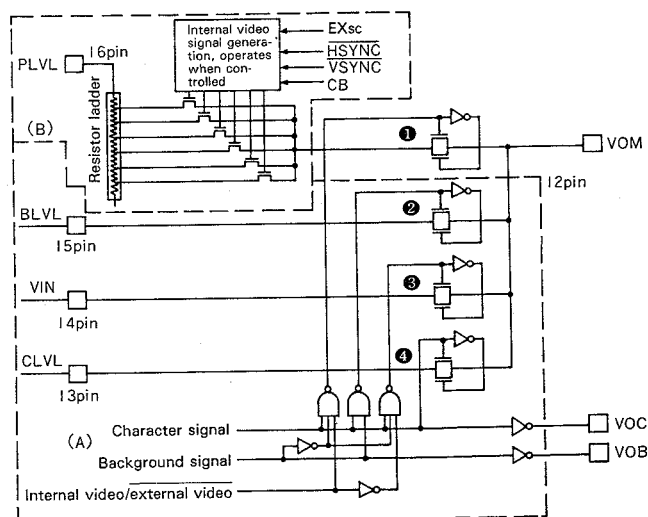
Pin Name	Pin No.	Input/Output	Function
EXtal Xtal	10 9	Input Output	Terminals for connecting the external dot clock generator
Reset	21	Input	TVDC reset input terminal. The TVDC operation is initialized when Reset is at a "Low" level. When power is turned ON, the V sync signal must be input to the VSYNC terminal. This is a hysteresis input.
HSYNC	5	Input	Horizontal sync signal input terminal. A hysteresis input.
VSYNC	6	Input	Vertical sync signal input terminal. A hysteresis input.
CS	19	Input	Chip Select terminal, which is set to a "Low" level when a serial transfer is required. A hysteresis input.
SCLK	18	Input	Serial clock input terminal, for use in a serial transfer. A hysteresis input.
SI	17	Input	Display control data input terminal. A hysteresis input.
VIN	14	Input	Video signal input terminal. (Analog input)
CLVL	13	Input	Character level input terminal. (Analog input)
BLVL	15	Input	Edge and background level input terminal. (Analog input)
VOM	12	Output	Output terminal for the superimposed signal of the video signal, character signal and edge or background signal. (Analog output).
VOC	3	Output	Character signal output terminal.
VOB	4	Output	Edge or background signal output terminal.
EXsc Xsc	8 7	Input Output	Terminals for connecting the external color burst clock generator (7.15909 MHz or 14.31818 MHz). Also used for the internal sync signal generation in Video mode 2.
CB	20	Input	Used to select whether the color burst is to be present or not when Video mode 2 is set.
PLVL	16	Input	Pedestal level input terminal. When Video mode 2 is set, the pedestal level of the internally-generated simplified video signal shall be adjusted to that of the external video signal.
Vcc	22	Input	+5V external power supply terminal.
Vss	11	Input	GND.
Test 1 Test 2	1 2	Output	Chip testing terminals, which are usually open.

When superimposing characters on external video signal

The video signal which is input from pin 14 of the IC is output to pin 12 (VOM) by way of an analog switch (③). Thus, analog switch (③) turns OFF at the position where characters are superimposed and analog switch (②) turns ON.

At this time, the voltage at pin 15 is output to pin 12 (VOM). If this voltage level is low, a black signal appears. Subsequently, analog switch (②) turns OFF and analog switch (④) turns ON. Thus, as pin 13 is higher in voltage level than pin 15, a nearly white signal appears.

Like this, by the ON/OFF operation of analog switches (②), (③) and (④), signals of two levels are superimposed on the video signal. (One level is for character signal and the other level is for character fringe signal.)



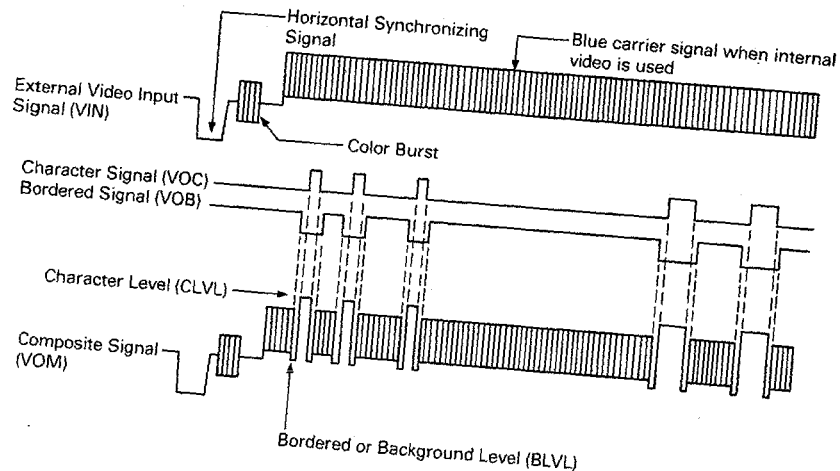
MB88323A-K2 Analog Switches

CIRCUIT DESCRIPTION

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When generating internal video signals

When no video signal is input, the IC generates video signals to output them. In this case, analog switch (1) is ON and others are OFF. Internal video signals are generated by dividing 7.15909 MHz (twice the frequency of color subcarrier).

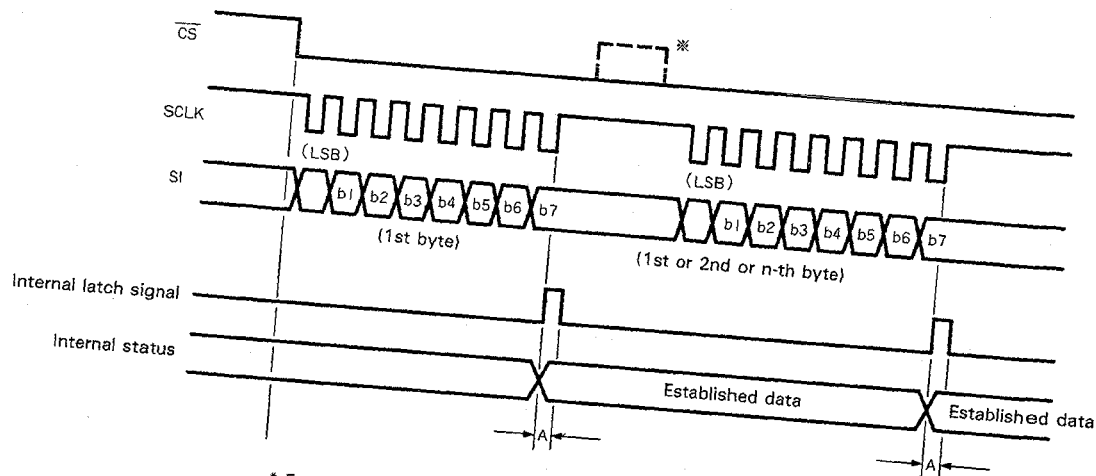


Data transfer system and command write format

The display control commands and data are written by means of 8-bit serial transfer.

For the serial transfer, the \overline{CS} terminal should be set to Low. While the \overline{CS} terminal is Low, data of any byte in the command, i.e. the 1st byte, 2nd byte, ... to the n-th byte, can be transferred.

Each unit of data consists of 8 bits, which are shifted in sequence from the LSB (Least Significant Bit) and input to the SI terminal. As shown in Fig. 5, data is input and shifted at the positive-going edge of the shift clock input at the SCLK terminal. The transferred data is latched internally at the positive-going edge of the shift clock for the 8th bit.



* For byte synchronization, the \overline{CS} terminal can be returned to High temporarily then turned Low again in the middle of serial data transfer.

Serial Transfer Timing

KA-V5000

CIRCUIT DESCRIPTION

IC307: YM3411 (X07-2480-81) DIGITAL DELAY IC

Outline

YM3411 is a 16-pin DIP CMOS IC with high-grade digital surround function making the best of digital audio processing technology.

The internal digital processing is of 14-bit in a floating-point system.

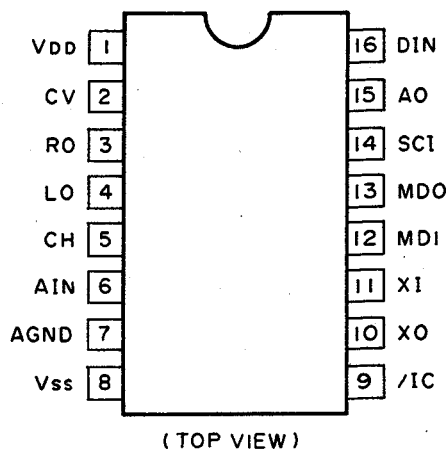
The 1-channel analog signal is converted into a digital form by a built-in A/D converter. Then, for providing the surround effect according to the mode, the 2-channel digital signals subjected to the delay process making use of a digital audio processing and a built-in RAM are output converted into analog forms by built-in D/A converters. The sampling rate of the A/D conversion is 49.7 kHz. That of the D/A conversions, subject to 2x over-sampling, is 99.4 kHz.

There are available four modes. Mode setting is made by 2-pin "H"/"L" combination.

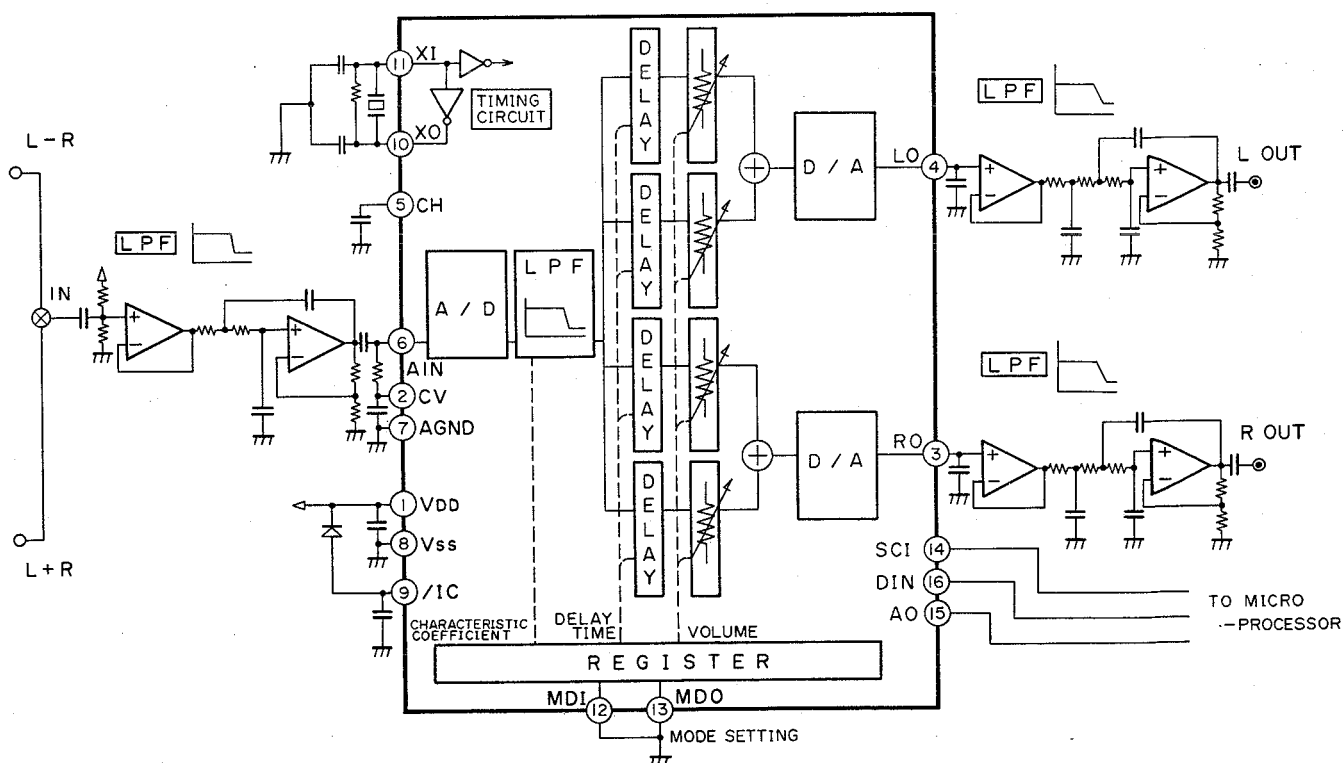
Out of these four modes, one is a manual mode, in which it is possible to control the delay, frequency response and output level by inputting data from an external means such as a personal computer, etc.

Any of the other three modes is a preset mode, the use of which permits ease at realizing a surround effect without a personal computer.

Terminal connection diagram



Block diagram



CIRCUIT DESCRIPTION

Pin functions

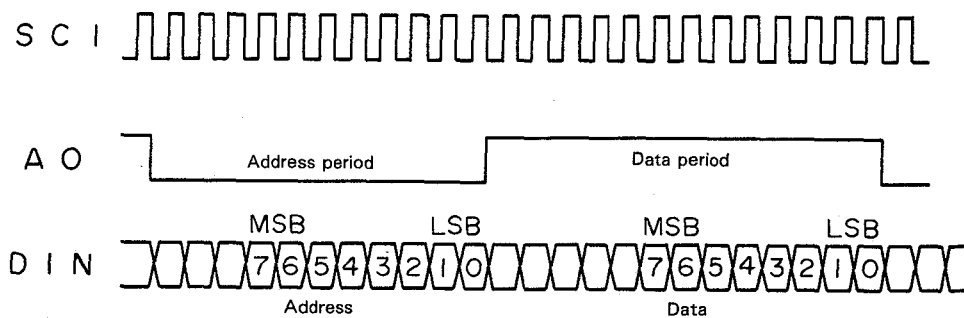
Pin No.	Name	I/O	Function
1	V _{DD}	—	+ 5 V power supply pin
2	CV	O	A/D conversion reference voltage (+ 2.5 V) output pin
3	RO	O	Rch D/A conversion analog signal output pin
4	LO	O	Lch D/A conversion analog signal output pin
5	CH	O	Externally connected sample-hold capacitor pin
6	AIN	I	Analog signal input pin
7	AGND	—	Ground this pin and the input A/D conversion, output D/A conversion ground pin (V _{SS}) outside in common.
8	V _{SS}	—	Digital system, system ground pin
9	/IC	*I	Reset pin
10	XO	O	Crystal oscillator connection pin
11	XI	I	Crystal oscillator connection pin (system clock pulse input pin)
12	MD ₁	*I	Mode setting pin
13	MDO	*I	Mode setting pin
14	SCI	I	Personal computer data shift clock pulse input pin
15	AO	I	Personal computer address/data identification signal input pin
16	DIN	I	Personal computer data input pin

* Any pin marked * has a pull-up resistance inside.

Manual mode

Various effects can be created by inputting necessary parameters from pins SCI, AO and DIN by a personal computer, etc.

Input is made in the order of address and then data in the signal timing shown below.



Signals AO and DIN are taken in at each leading edge of clock pulse SCI. For this purpose, the values of signals AO and DIN need to be stable at each rise time of clock pulse SCI.

Even when sending of SCI, AO and DIN, when unused, is stopped, there occurs no problem.

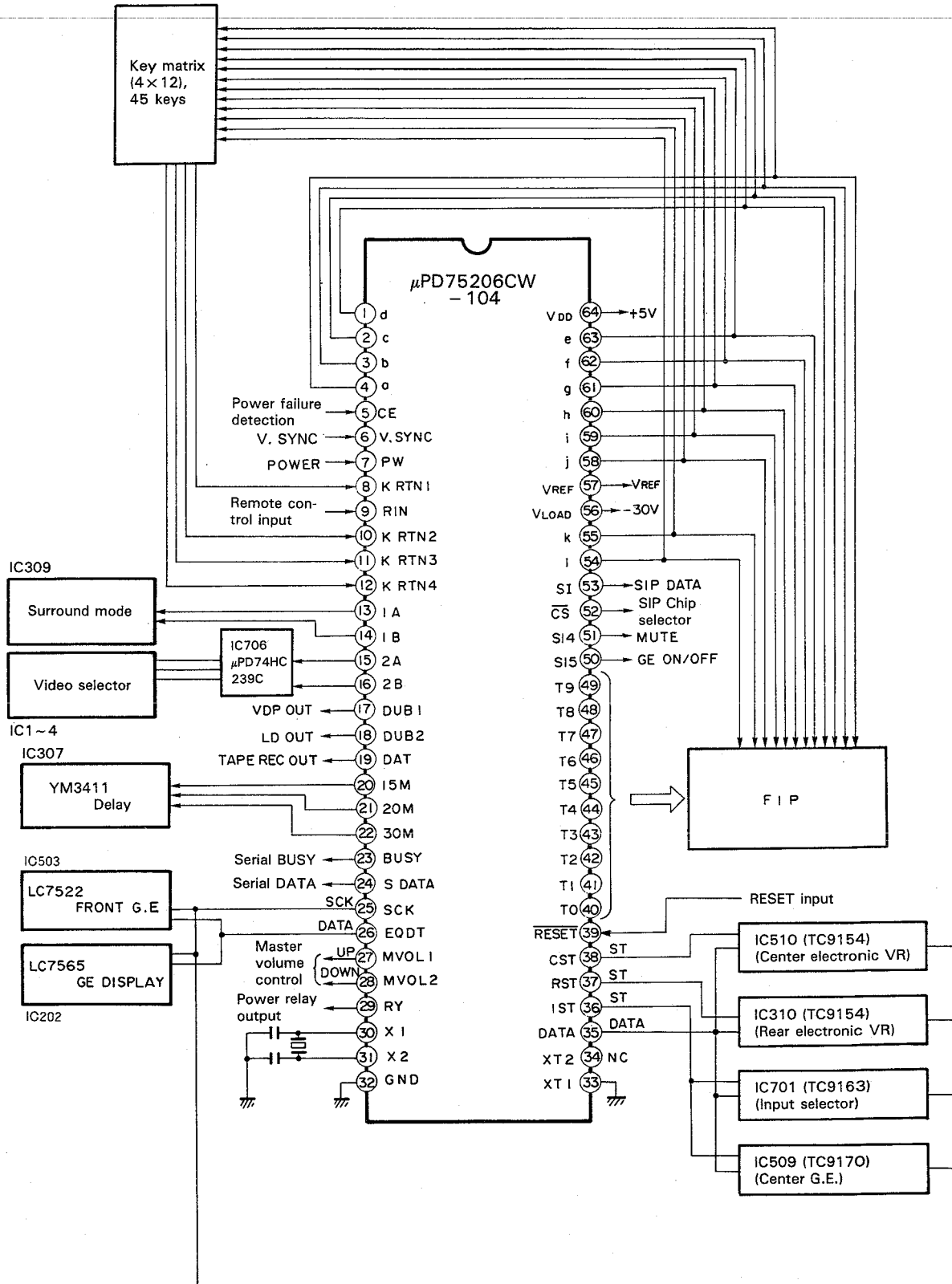
However, after valid final data AO changes, it is necessary to send one pulse of SCI.

KA-V5000

CIRCUIT DESCRIPTION




IC201: μ PD75206CW-104 (X25-3610-81)
MICROPROCESSOR

Terminal connection diagram



CIRCUIT DESCRIPTION

Pin functions

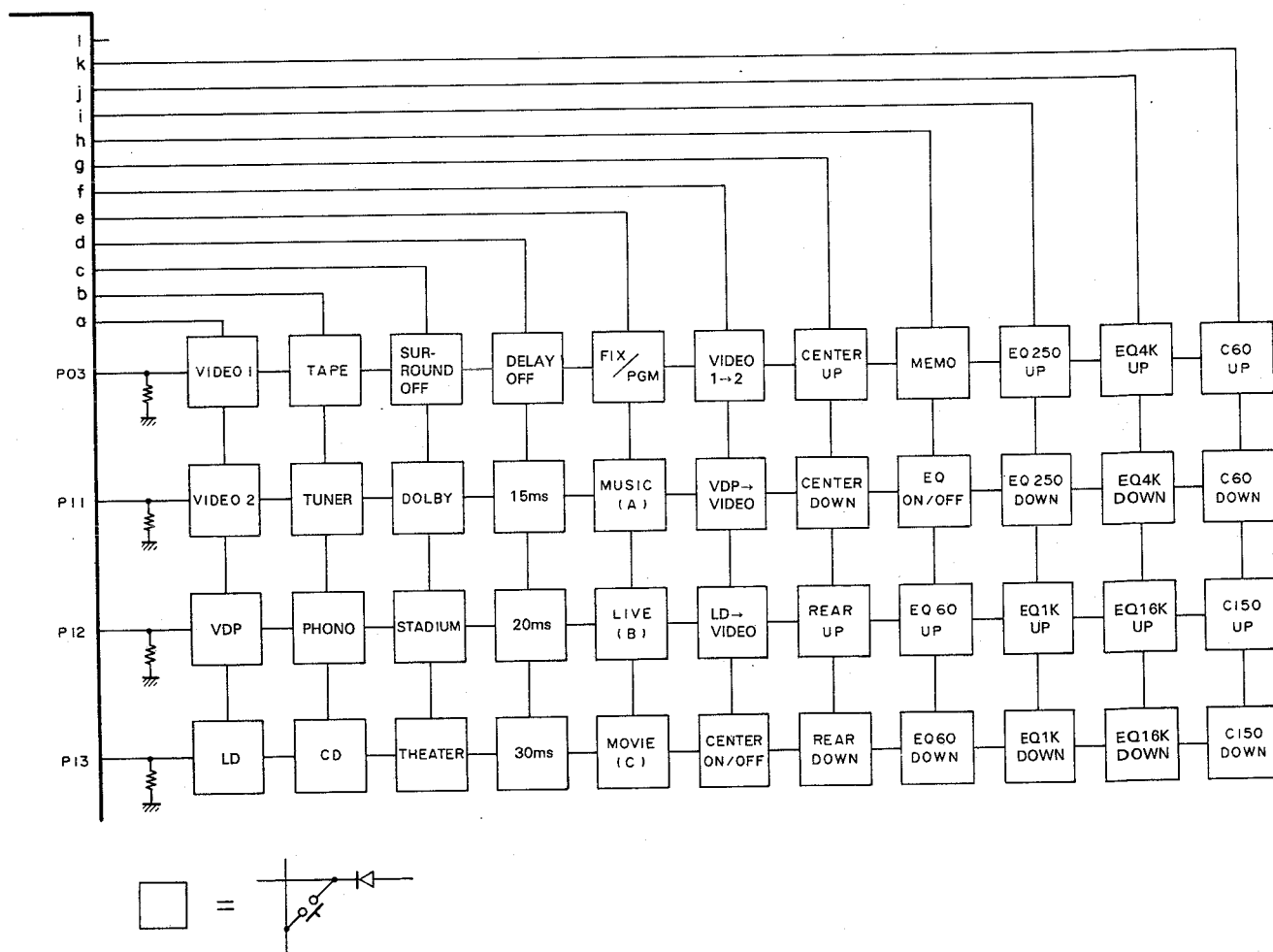
Pin No.	Name	Active	I/O	Function
1	d		O	Segment output (key matrix) d
2	c		O	Segment output (key matrix) c
3	b		O	Segment output (key matrix) b
4	a		O	Segment output (key matrix) a
5	CE	H	I	Power failure input
6	V.SYNC		I	V-sync input
7	PW		I	POWER
8	K RTN 1	H	I	Key data input 1
9	R IN		I	Remote control input
10	K RTN 2	H	I	Key data input 2
11	K RTN 3	H	I	Key data input 3
12	K RTN 4	H	I	Key data input 4
13	1A		O	Surround mode selection
14	1B		O	
15	2A		O	Video input selection
16	2B		O	
17	DUB 1	H	O	VDP REC OUT selection
18	DUB 2	H	O	LD REC OUT selection
19	DAT	H	O	TAPE REC OUT inhibit
20	15M	H	O	YM3411 control (Delay)
21	20M	H	O	
22	30M	H	O	
23	BUSY	H	O	Serial busy system control
24	SDATA		O	Serial data system control
25	SCK		O	Clock pulse output for MB88323A, TC9514, TC9163, LC7522, LC7565
26	EQDT		O	Serial data (for equalizer control)
27	MVOL 1	H	O	Master volume control output (UP)
28	MVOL 2	H	O	Master volume control output (DOWN)
29	RY	H	O	Power relay
30	X1		I	CLOCK
31	X2		I	
32	GND		—	GND
33	XT1		—	GND
34	XT2		—	NC
35	DATA		O	Electronic VR, input selector data output
36	IST		O	Input selector center G.E strobe
37	RST		O	Rear electronic VR strobe
38	CST		O	Center electronic VR strobes
39	RESET	L	I	Microprocesor reset pin
40 49	T0 T9		O	Digit output
50	S15	H	O	G.E ON/OFF
51	S14	H	O	Mute output
52	$\overline{\text{CS}}$	L	O	Chip selector for superimpose
53	SI	H	O	Data selector for superimpose

KA-V5000

CIRCUIT DESCRIPTION

Pin No.	Name	Active	I/O	Function
54	l		O	Segment output l
55	k		O	Segment output k
56	VLOAD		—	FL power supply (−30 V)
57	VREF		O	Reference voltage check pin
58	j		O	Segment output j
59	i		O	Segment output i
60	h		O	Segment output h
61	g		O	Segment output g
62	f		O	Segment output f
63	e		O	Segment output e
64	VDD		—	+5 V

• Key matrix

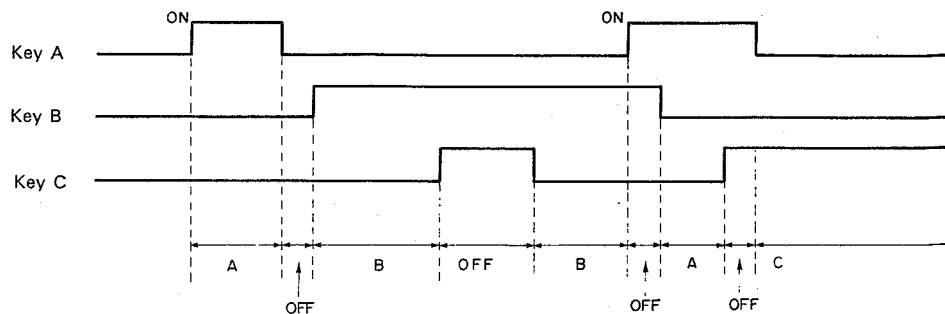


CIRCUIT DESCRIPTION

• Key take-in

1) The key take-in method is a 2-key lock-out system, in which only when a key is pressed singly, this key is accepted, while when two or more key are pressed, they are handled as key OFF. (This key take-in method is the same as that in the remote control.)

2) The chattering absorb time is 10 msec.



Microcomputer Hardware Reset Method (How to reset to the same initial setting as the factory setting)

- (1) Disconnect the power cord.
- (2) Short-circuit the microcomputer's VDD (pin 64) and GND for 1 to 2 seconds.
- (3) Connect the power cord and switch the power ON.

At this time, the display should show the following.

EQ: OFF (Flat)	MEMORY: FIX, A
SURROUND: OFF	DELAY: OFF
SELECTOR: CD	DUBBING: VIDEO 1 → VIDEO 2
REAR LEVEL: 5	CENTER LEVEL: 5

To bring the microcomputer pin in contact with the chassis, insert a metal stick through the notch provided on the front sub-chassis by the side of the power transformer.

ADJUSTMENT/REGLAGES

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT (FRONT AMPLIFIER)	—	Connect a DC voltmeter across CN409(L) and CN410(R). (X07-248 A/2) (CKA-50201-01 A/2)	VOLUME:0	VR401(L) VR402(R) (X07-248 A/2) (CKA-50201-01 A/2)	4.5mV	(a)
2	IDLE CURRENT (REAR AMPLIFIER)	—	Connect a DC voltmeter across TP2(L) and TP1(R). (X09-289 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR702(L) VR701(R) (X09-289 A/2) (CKA-50201-02 A/2)	4.5mV	(b)
3	IDLE CURRENT (CENTER AMPLIFIER)	—	Connect a DC voltmeter across TP3. (X09-289 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR703 (X09-289 A/2) (CKA-50201-02 A/2)	4.5mV	(c)
4	VCO	No input	Connect a frequency counter to TP4. (X14-259 C/5) (CKA-50201-03 C/5)	—	VR1 (X14-259 C/5) (CKA-50201-03 C/5)	15.734kHz	(d)

REGLAGES

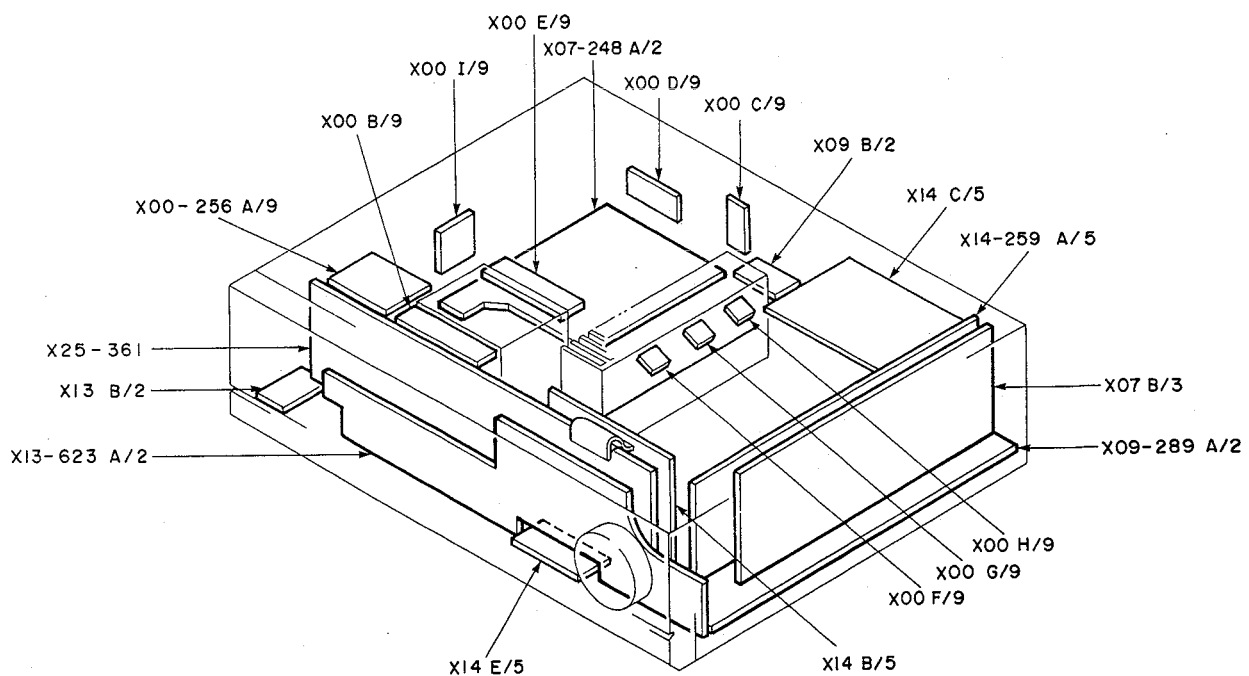
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION (AMPLIFICATEUR AVANT)	—	Raccorder un voltmètre CC entre CN409(L) et CN410(R). (X07-248 A/2) (CKA-50201-01 A/2)	VOLUME:0	VR401(L) VR402(R) (X07-248 A/2) (CKA-50201-01 A/2)	4,5mV	(a)
2	COURANT DE POLARISATION (AMPLIFICATEUR ARRIERE)	—	Raccorder un voltmètre CC entre TP2(L) et TP1(R). (X09-289 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR702(L) VR701(R) (X09-289 A/2) (CKA-50201-02 A/2)	4,5mV	(b)
3	COURANT DE POLARISATION (AMPLIFICATEUR CENTRAL)	—	Raccorder un voltmètre CC sur TP3. (X09-289-02 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR703 (X09-289 A/2) (CKA-50201-02 A/2)	4,5mV	(c)
4	VCO	Pas d'entrée	Raccorder un compteur de fréquence sur TP4. (X14-259 C/5) (CKA-50201-03 C/5)	—	VR1 (X14-259 C/5) (CKA-50201-03 C/5)	15,734kHz	(d)

ABGLEICH/PC BOARD LOCATION

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM (VORDERER VERSTÄRKER)	—	Gleichstrom- Voltmeter zwischen CN409(L) und CN410(R) anschließen. (X07-248 A/2) (CKA-50201-01 A/2)	VOLUME:0	VR401(L) VR402(R) (X07-248 A/2) (CKA-50201-01 A/2)	4,5mV	(a)
2	LEERLAUFSTROM (HINTERER VERSTÄRKER)	—	Gleichstrom- Voltmeter zwischen TP2(L) und TP1(R) anschließen. (X09-289 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR702(L) VR701(R) (X09-289 A/2) (CKA-50201-02 A/2)	4,5mV	(b)
3	LEERLAUFSTROM (MITTLERER VERSTÄRKER)	—	Gleichstrom- Voltmeter an TP3 anschließen. (X09-289 A/2) (CKA-50201-02 A/2)	VOLUME:0	VR703 (X09-289 A/2) (CKA-50201-02 A/2)	4,5mV	(c)
4	VCO	Kein Eingang	Frequenzzähler an TP4 anschließen. (X14-259 C/5) (CKA-50201-03 C/5)	—	VR1 (X14-259 C/5) (CKA-50201-03 C/5)	15,734kHz	(d)

PC BOARD LOCATION



KA-V5000

KA-V5000

VOLTAGE TABLES

(X14-2590-81)

IC501,502
14 13.3V
16 -13.3V

IC503
1 6V
14 -6V
15 4.7V
28 0V

IC504
7 -6.5V
14 6.5V

IC505
1 VR UP:4.8V
4 VR DOWN:4.8V
5 VR DOWN:5.9V
7 6V
8 VR UP:5.9V

IC506,507,508
1-3 0V
4 -12.8V
5-7 0V
8 12.8V

IC509
1,6,7 -6V
4,13,16 6V

IC510
1 -6V
16 6V

IC511
1-3 0V
4 -14.6V
5-7 0V
8 14.6V

IC512
IN 14.8V
GND -
OUT 6V

Q501,502
E 0.4V
C 6V
B 1.1V

Q503
E 6.5V
C -
B -

Q505
E -6.5V
C -
B -

Q506
E -
C 5.9V
B 0V

Q507
E -
C 0V
B 0.6V

IC901,903-905
1-3 0V
4 -13.8V
5-7 0V
8 6.5V

IC902
1-3 0V
4 -14V
5-7 0V
8 14V

IC906
IN 15V
GND -
OUT 6.5V

Q903,904
E 1.1V
C 14V
B 1.7V

Q1
E 5.8V
C 11.5V
B 6.4V

Q2
E 5.3V
C 6.9V
B 5.9V

Q3
E 5.3V
C 11.5V
B 6.0V

Q4
E 6.2V
C 6.4V
B -

Q5
E 12V
C -
B -

Q7
E -
C 5.8V
B -

Q8
E 5.3V
C 11.5V
B 5.9V

Q9
E 5.3V
C 6.9V
B 5.9V

Q10
E 5.8V
C 11.5V
B 6.4V

Q11
E 11.5V
C -
B -

Q12
E 4.2V
C 11.5V
B 4.9V

Q13
E 5.5V
C 11.5V
B 6.2V

Q14
G 5V
S 5V
D -

Q15
E 0V
C 11.5V
B 0V

IC1,3
9 9V

IC2
7 9V

IC4
1 4.9V
6 9V

IC5
1-4 -
5 4.9V
6 0V
7 1.9V
8 -2.4V
9 0V
10 2.5V
11 -
12 0.5V
13 0.9V
14 0.3V
15 0V
16 2.2V
17,18 0V
19 4.6V
20-22 5.2V

IC6
1 2.1V
2,3 2.4V
4 4.2V
5 -
6 3.2V
7 0V
8 4.5V
9 5.0V

(X07-2480-81)

IC301-304
1 0V
4 -14V
7 0V
8 14V

IC305
1,7 0V

IC306
1-3 0V
4 -14V
5-7 0V
8 14V

IC307
1 5V
2 2.1V
3 0.7V
4 -
5,6 2.1V
7,8 -
9 4.7V
10 1.8V
11 2.1V
12-16 -

IC308
1-8 0V
9 -7.8V
10-15 0V
16 7.7V

IC309,310
7 -5V
16 5V

IC311
1-3 0V
4 -14V
5-7 0V
8 14V

IC312
IN 14V
GND -
OUT 5V

IC313
IN -14V
GND -
OUT -5V

Q301,302
E 5V
C -
B -

IC401,402
1,2 56.5V
3 50.2V
4,5 0V
6 -
7 -54.9V
8 (0.6V)
9,10 (-56.5V)
11 -0.6V
12 0.6V

IC403
1-3 0V
4 3.5
5 0V
6 0.8V
7 2.2V
8 3.4V

Q403,404
E (-1.1V)
C (0.6V)
B (-0.5V)

Q405,406
E -
C 56.5V
B -0.6V

Q407,408
E -
C (-56.5V)
B 0.6V

Q409,410
E 0V
C 56.5V
B 0V

Q411
E -
C 0V
B 56.5V

Q413
E 1.2V
C 1.3V
B 1.8V

Q414
E 0.6V
C 1.3V
B 1.2V

Q415
E (-41.5V)
C (-28V)
B -

(X09-2890-81)

IC713,714,716-720
4 -10.5V
8 10.5V

IC721
1-3 0V
4 -10V
5-7 0V
8 10V

IC701
1 -10.5V
28 10.5V

IC702
4-7 -10.5V
14 10.5V

IC703,704
7 -10.5V
14 10.5V

IC705
1-3 0V
4 -10.5V
5-7 0V
8 10.5V

IC706
16 5V

IC707
1,2 (29.5V)
3 24V
4,5 0V
6 -29V
7 (-1.2V)
8 (0.6V)
9,10 (-29.5V)
11,12 -

IC708,712
1,2 (29.5V)
9,10(-29.5V)

IC709
IN 28.7V
GND -
OUT 12V

IC710
IN 28.9V
GND -
OUT 15V

IC711
IN -30.3V
GND -
OUT -15V

Q701,702,709,710
E 10.5V
C -
B -

Q703
E -10.5V
C -
B -

Q713
E (-1.2V)
C (0.6V)
B (-0.6V)

Q715
E -
C (29.5V)
B 0.6V

Q716
E -
C (29.5V)
B -

Q717
E -
C (-29.5V)
B -0.6V

Q718
E -
C (-29.5V)
B -

Q719
E 0V
C -
B -

Q725
E (29.5V)
C -
B -

Q726
E (-29.5V)
C -
B -

Q721
E 12V
C -
B -

X25-3610-81

IC201
56 -29V
57 -29.1V
64 5V

IC202
42 5V

IC203
1 5V
2 -
3 5V

IC204
3,16 5V

FL201
1,2,64,65 AC 5V

Q201
E -
C 5V
B -

Q202
E -29.7V
C -29V
B -

Q203
E -29V
C -29V
B -28.3V

1

2

3

4

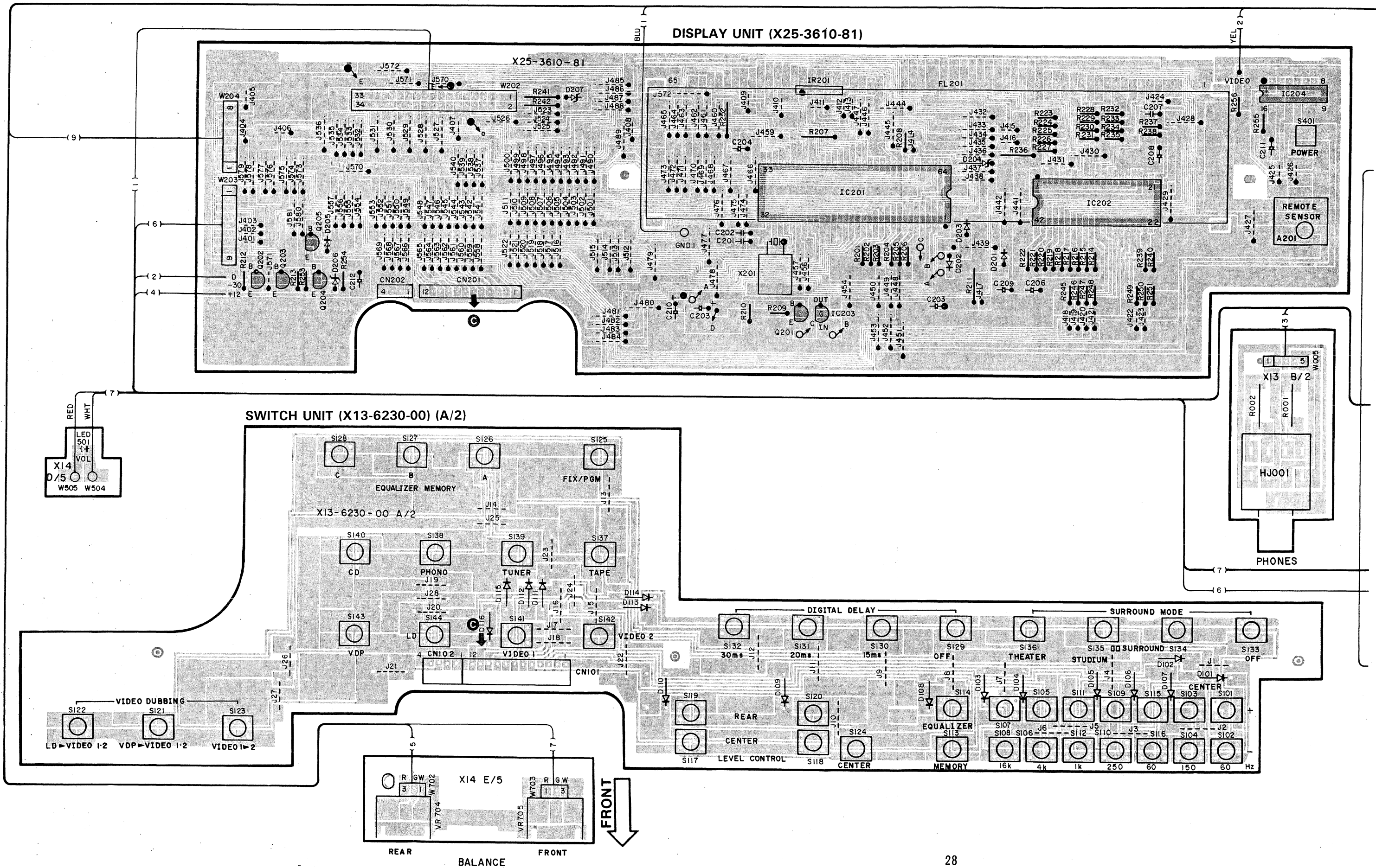
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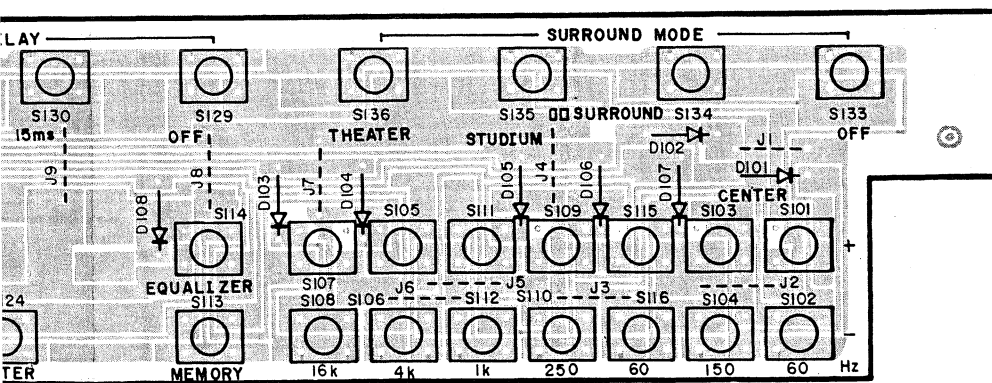
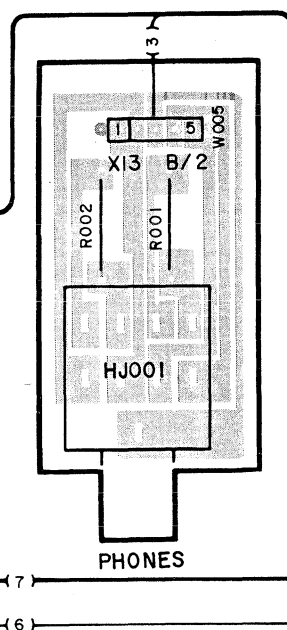
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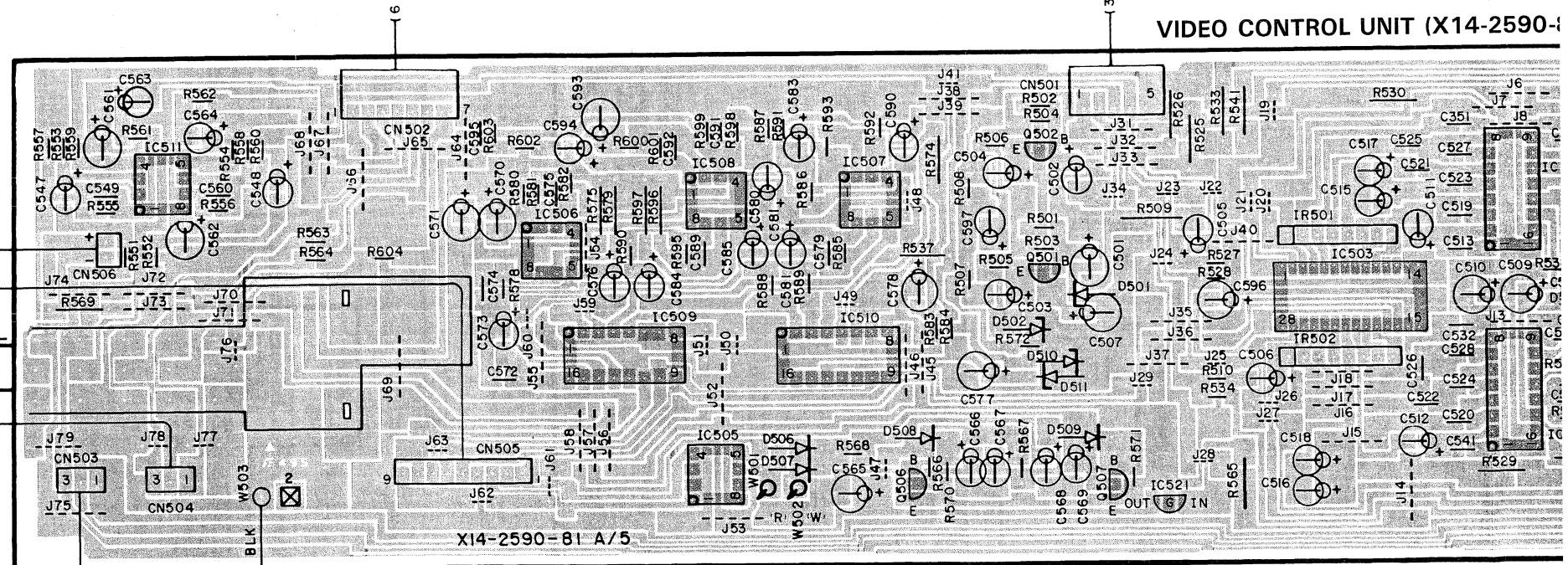
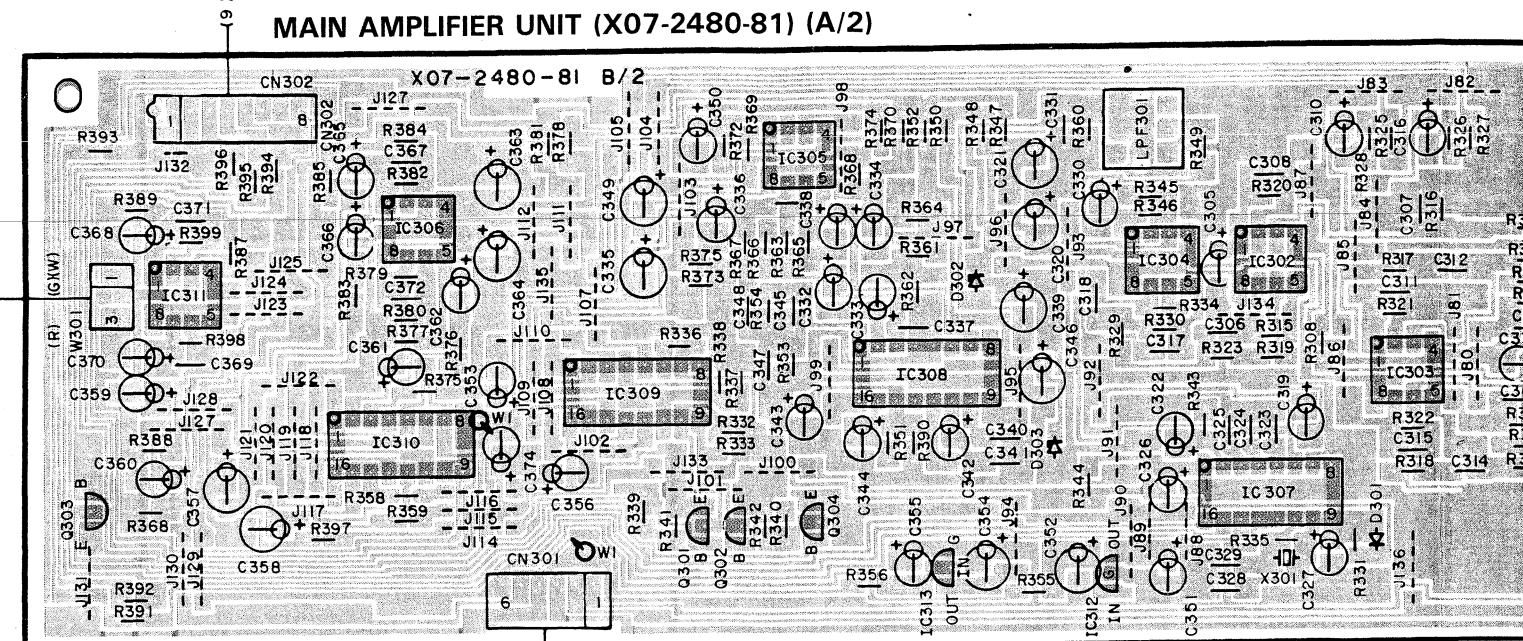


PC BOARD (Foil side view)



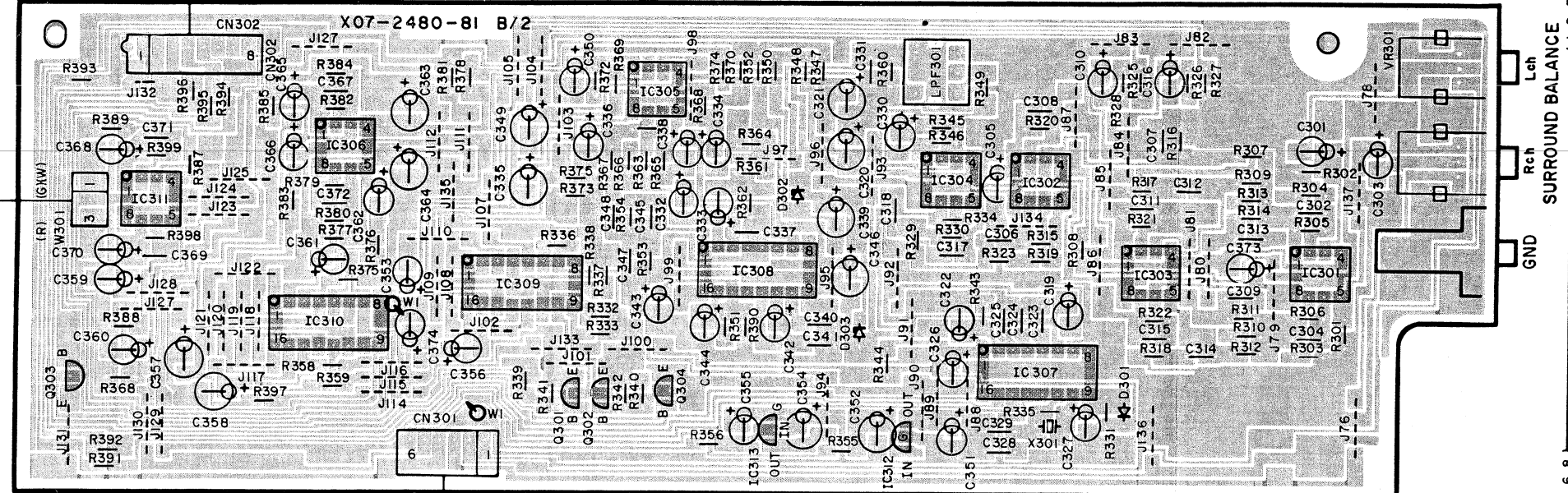


FRONT



Refer to the schematic

MAIN AMPLIFIER UNIT (X07-2480-81) (A/2)



1, 2, 5, 7
SURROUND BALANCE
Leh
Rcn
GND

MAIN AMPLIFIER UNIT (X07-2480-81) (A/2)

Ref. No.	IC	Q	Address
		301	3AH
		302	3AH
		303	3AF
		304	3AH
301			2AK
302			2AI
303			2AJ
304			2AI
305			2AH
306			2AG
307			3AI
308			2AH
309			2AG
310			2AG
311			2AF
312			3AI
313			3AH

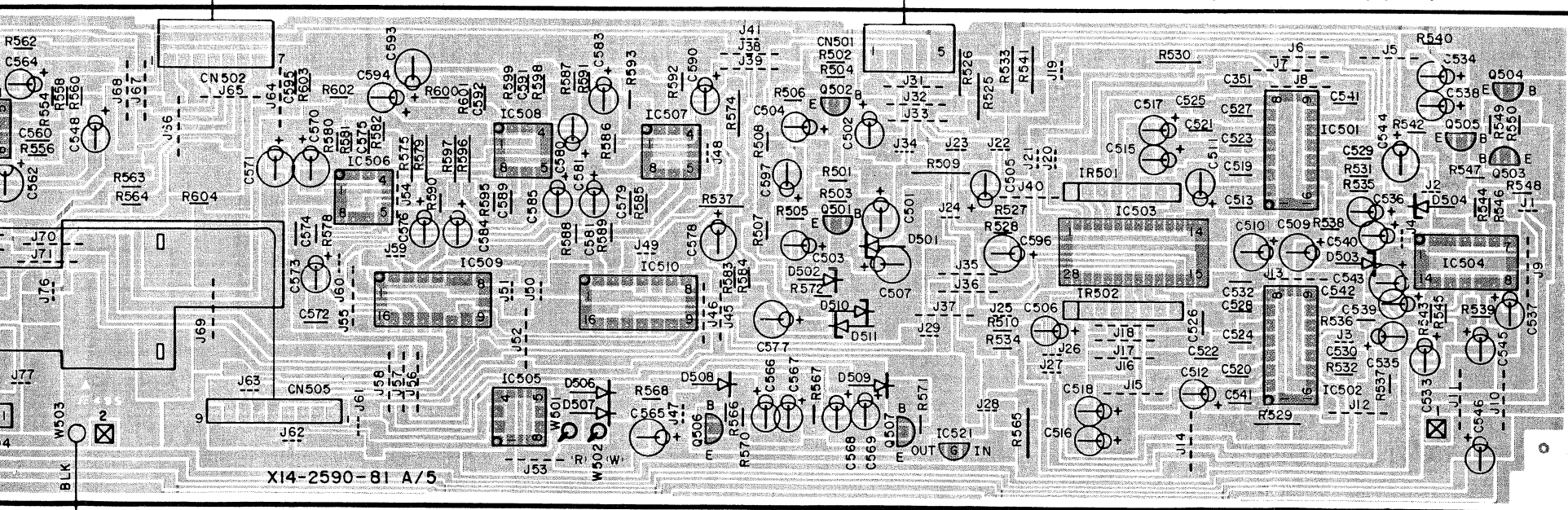
VIDEO CONTROL UNIT (X14-2590-81) (A/5)

Ref. No.	IC	Q	Address
		501	5AH
		502	4AH
		503	5AK
		504	4AK
		505	5AK
		506	6AH
		507	6AI
501			5AJ
502			6AJ
503			5AI
504			5AK
505			6AG
506			5AF
507			5AH
508			5AG
509			5AG
510			5AG
511			5AE
512			6AI

DISPLAY UNIT (X25-3610-81)

Ref. No.	IC	Q	Address
		201	3Z
		202	3V
		203	3V
		204	3V
		205	3V
201			2Z
202			2AB
203			3Z
204			2AC

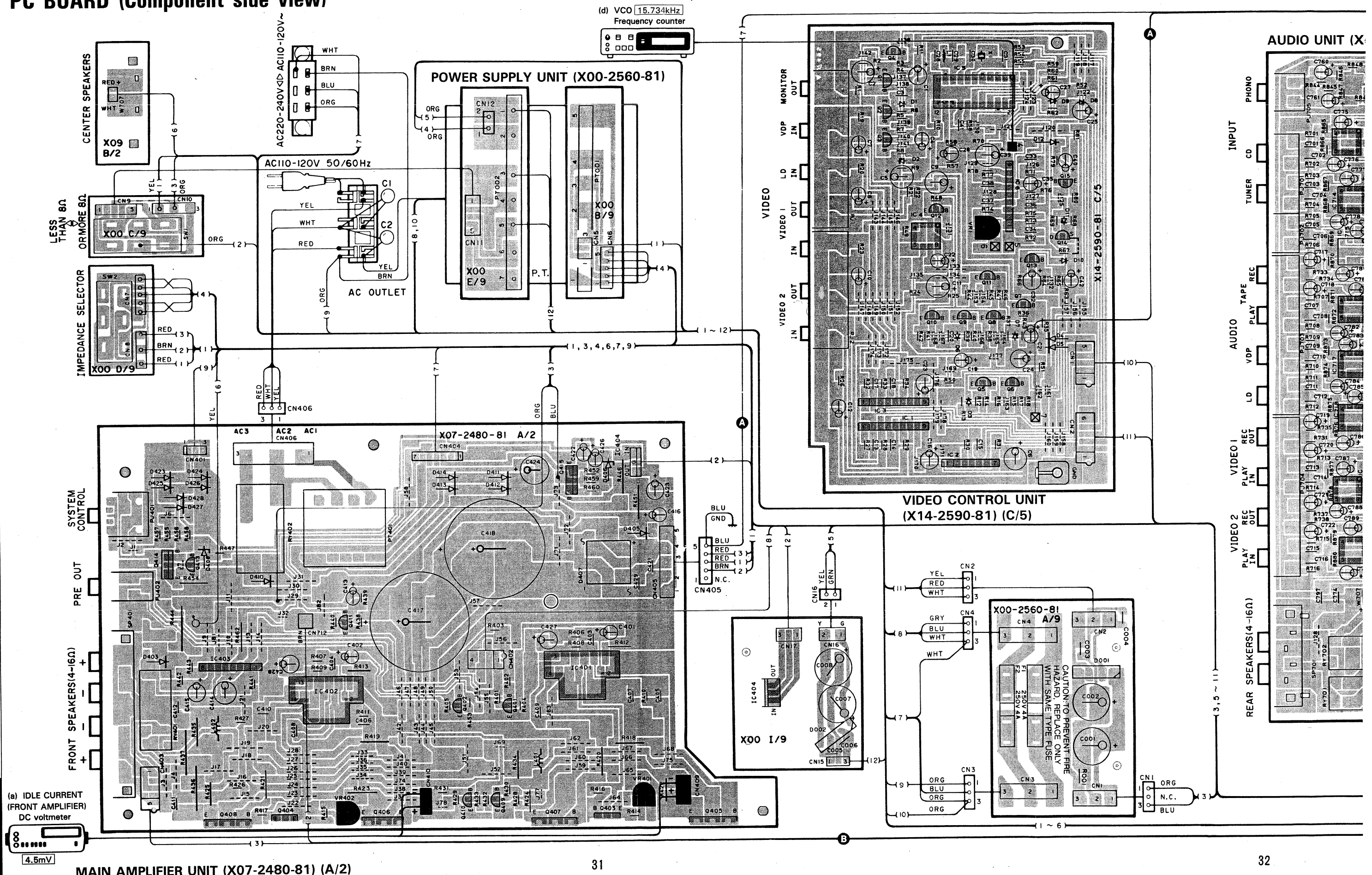
VIDEO CONTROL UNIT (X14-2590-81) (A/5)

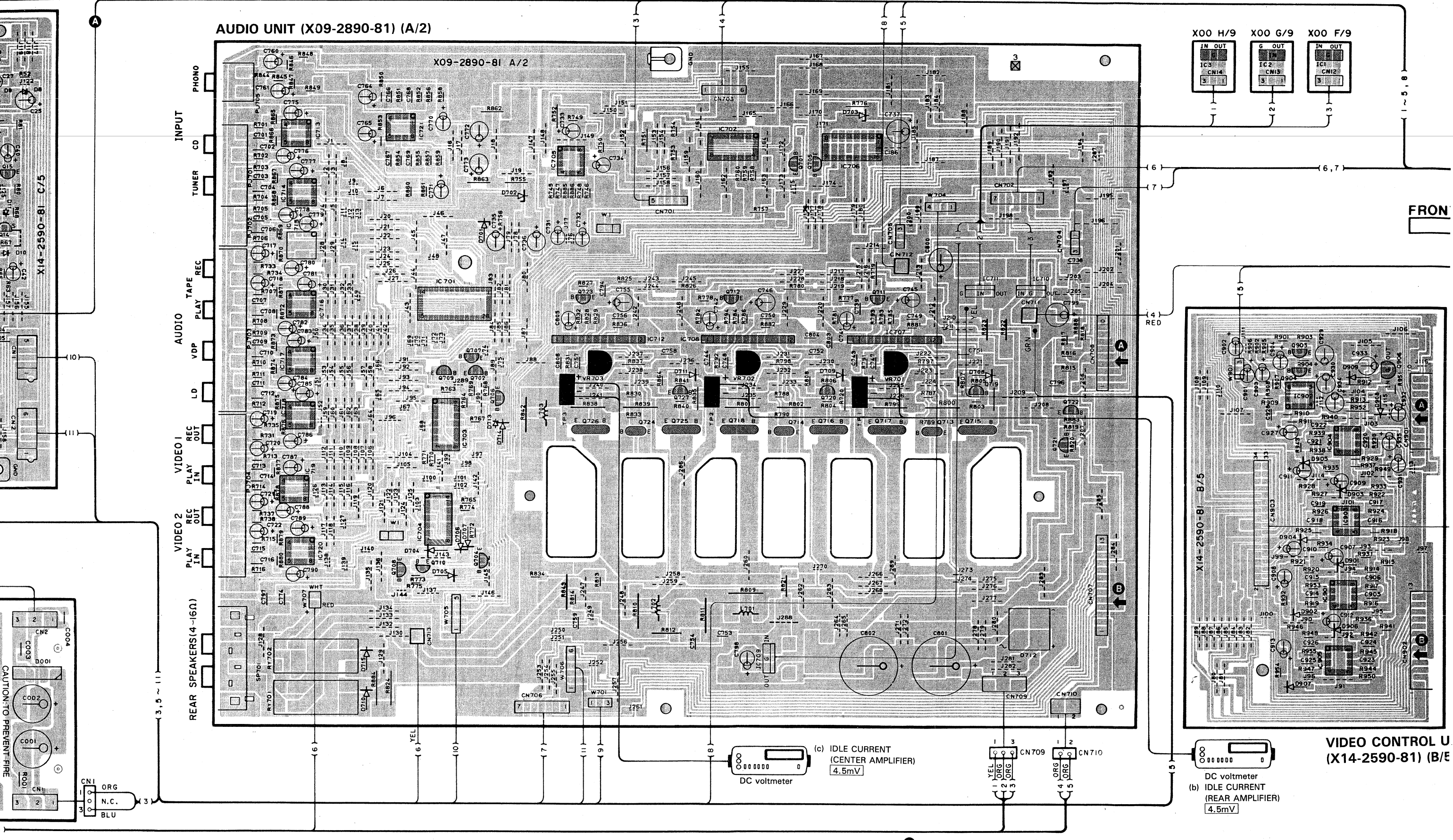


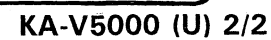
KA-V5000 (U) 1/2

Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Component side view)

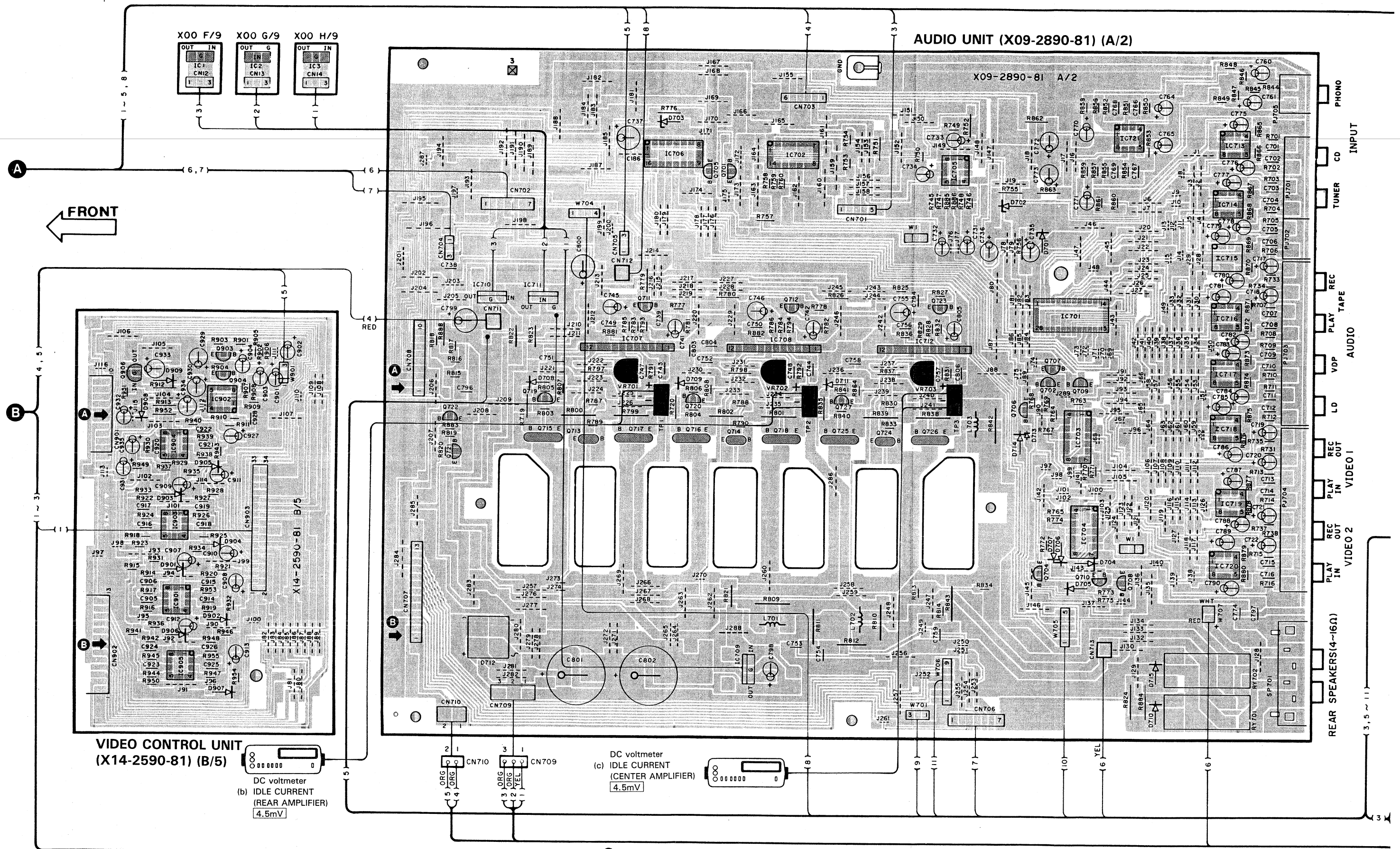




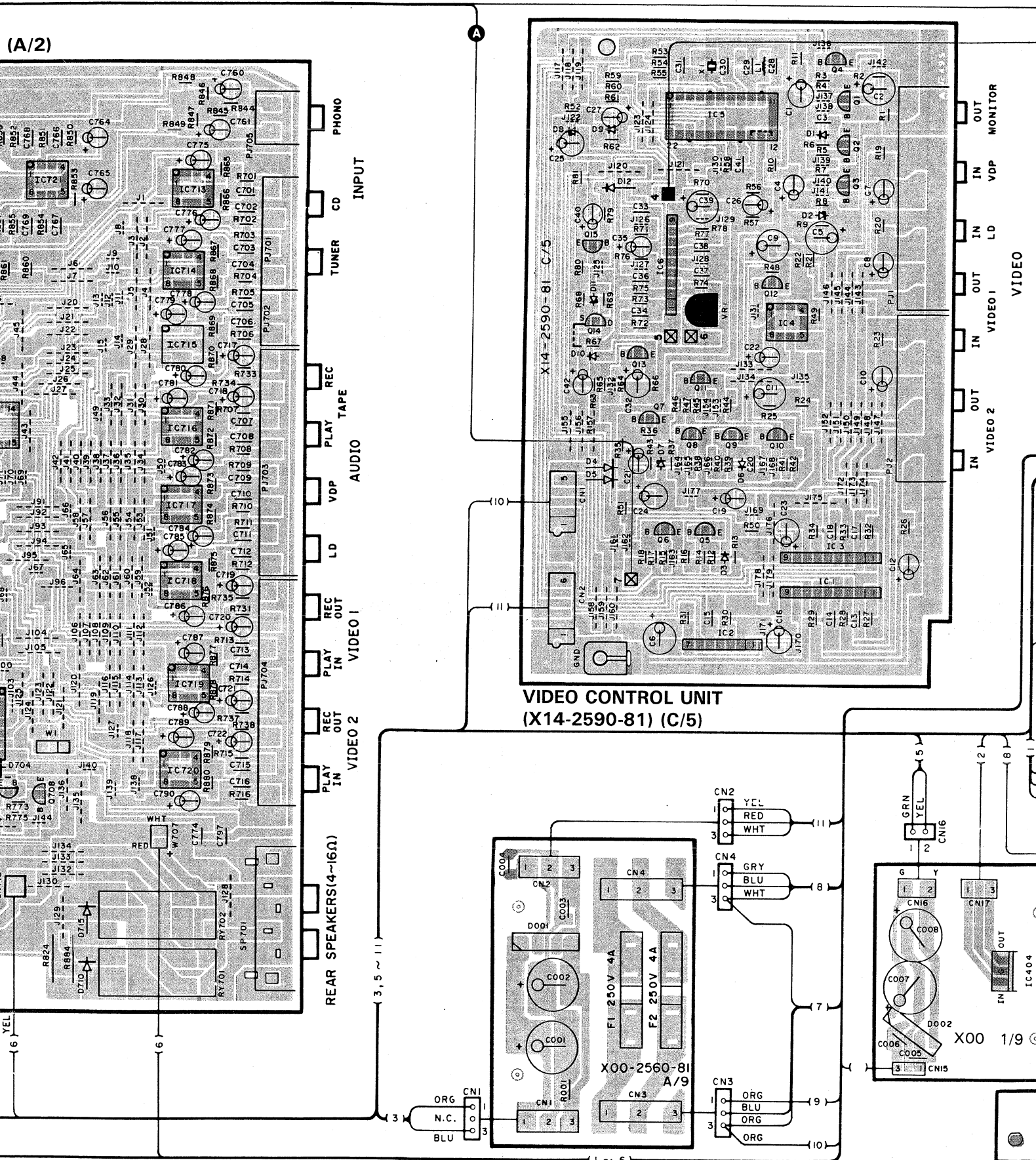


Ref. No.		Address
IC	Q	
404		6AR

PC BOARD (Foil side view)

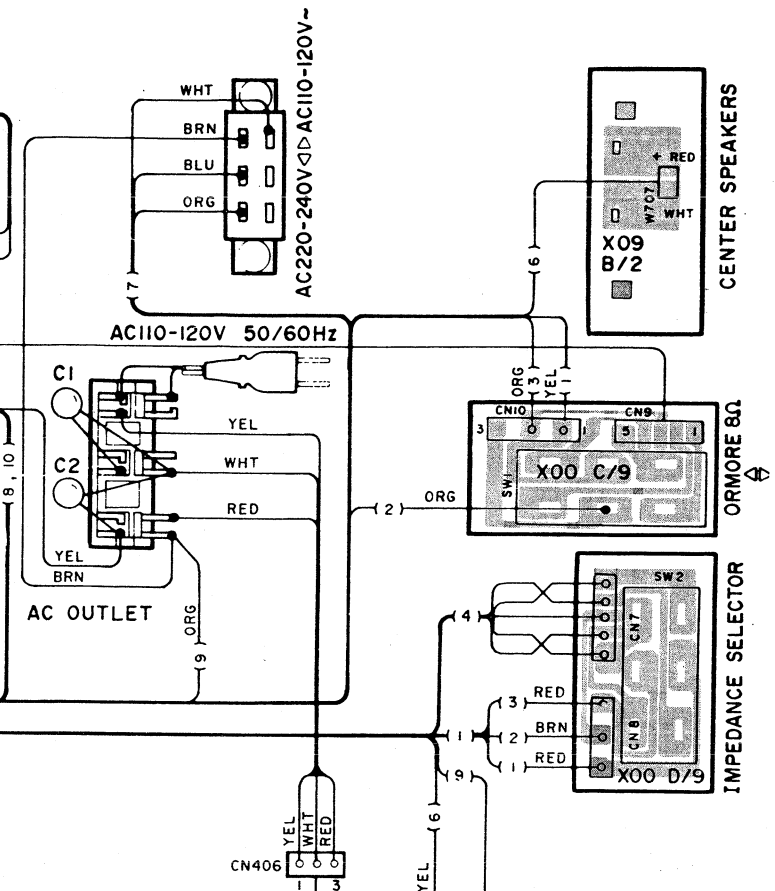
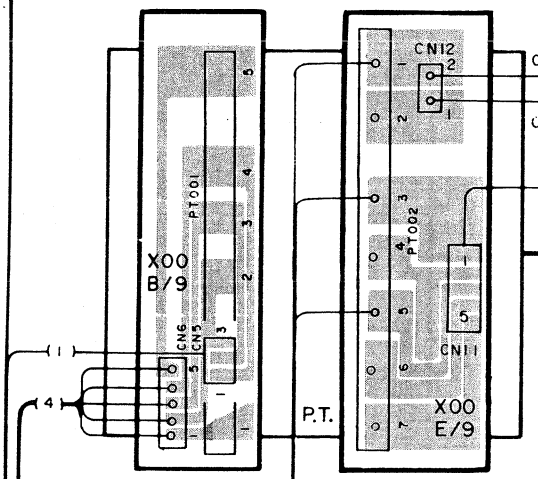


(A/2)

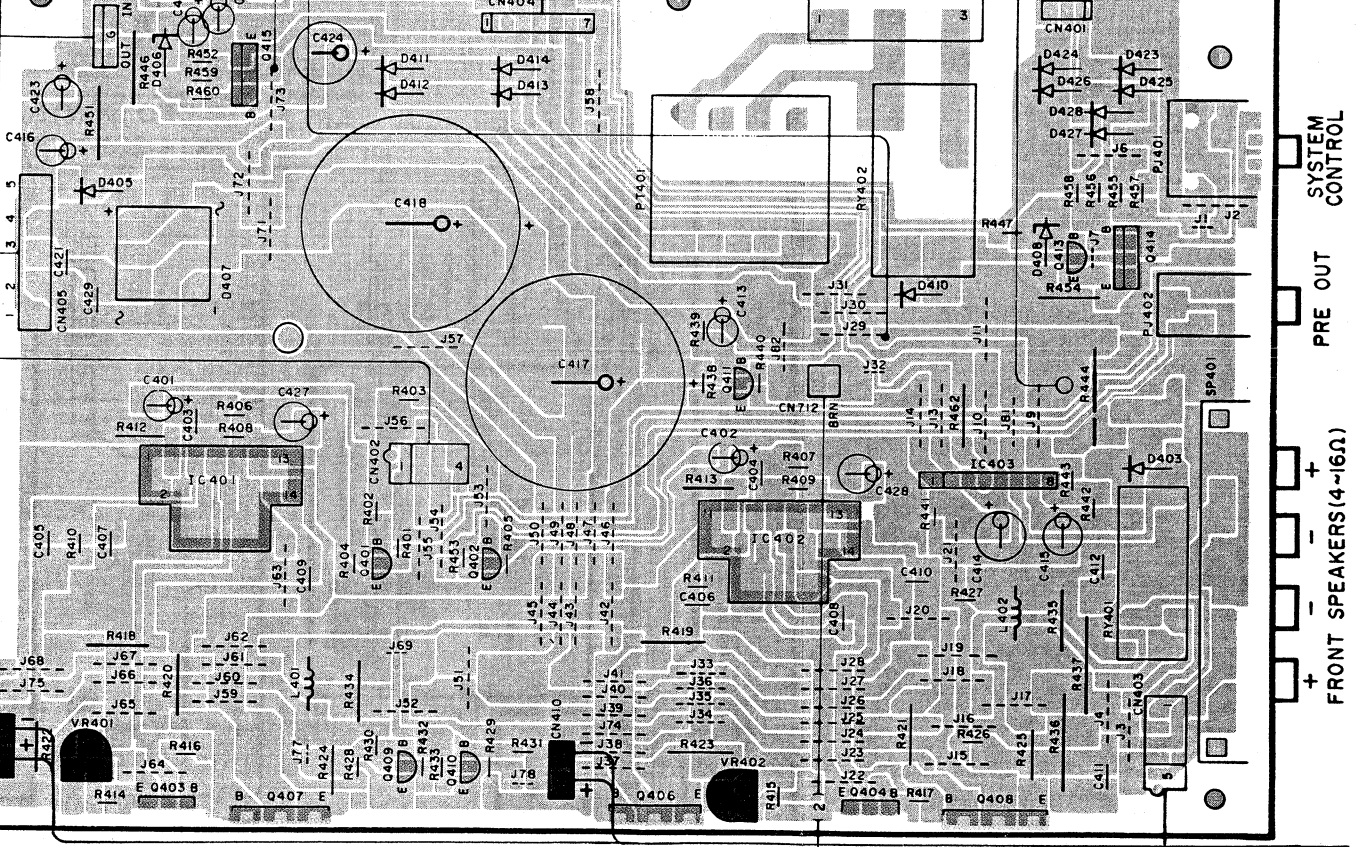


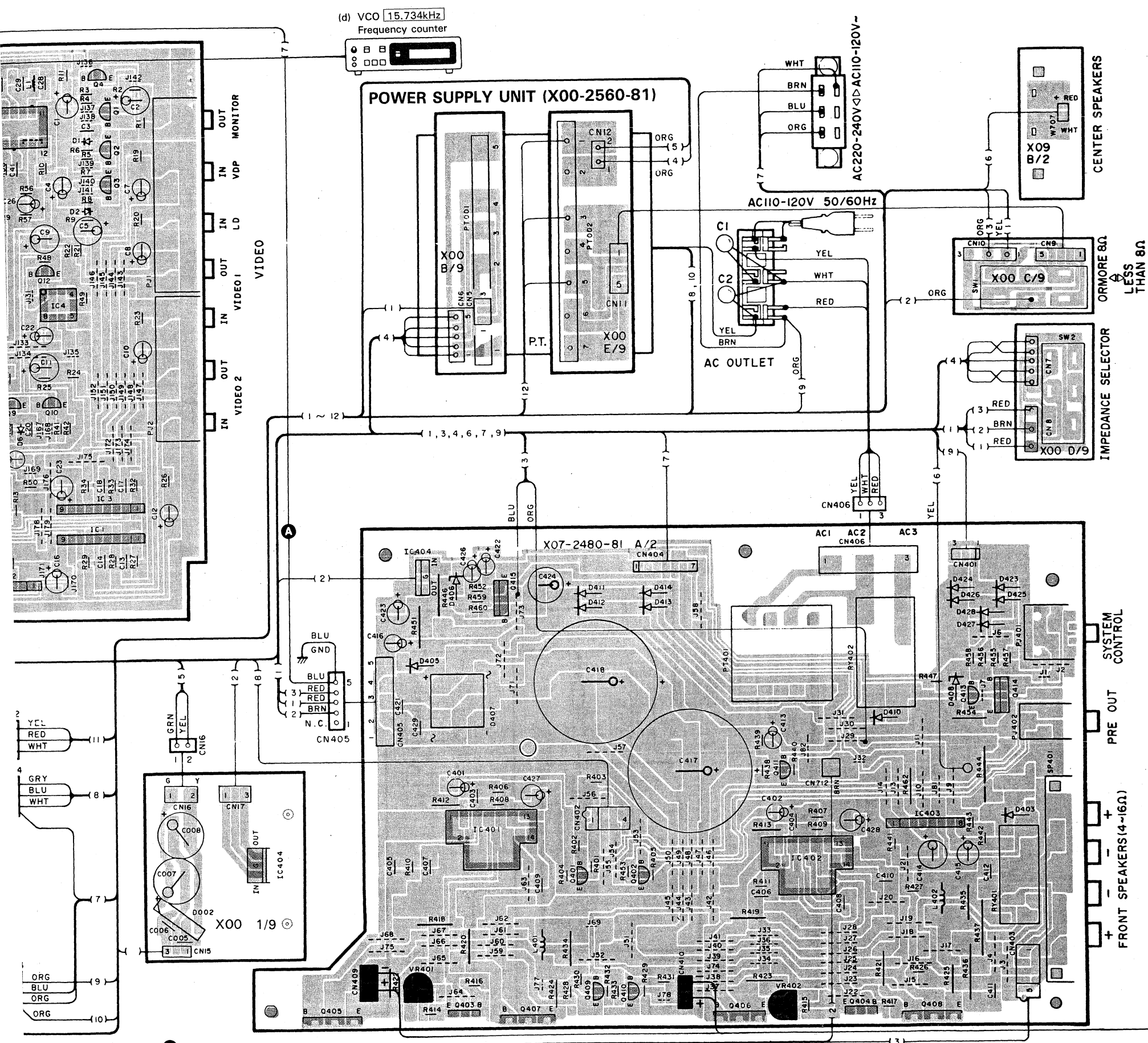
(d) VCO 15.734kHz
Frequency counter

POWER SUPPLY UNIT (X00-2560-81)



MAIN AMPLIFIER UNIT (X07-2480-81) (A/2)





MAIN AMPLIFIER UNIT (X07-2480-81) (A/2)



KA-V5000 (U) 2/2

Refer to the schematic diagram for the values of resistors and capacitors.

VIDEO CONTROL UNIT
(X14-2590-81) (B/5)

Ref. No.		Address
IC	Q	
	903	3BG
	904	4BG
	906	4BG
901		5BG
902		4BG
903		5BG
904		4BG
905		6BG

AUDIO UNIT
(X09-2890-81) (A/2)

Ref. No.		Address
IC	Q	
	701	2BK
	702	4BM
	703	—
	704	5BM
	705	2BK
	706	4BM
	707	3BM
	708	5BM
	709	4BM
	710	5BM
	711	3BJ
	712	3BK
	713	4BJ
	714	4BK
	715	4BJ
	716	4BK
	717	4BJ
	718	4BK
	719	4BJ
	720	4BK
	721	4BI
	722	4BI
	723	3BM
	724	4BL
	725	4BL
	726	4BL
	727	4BL
701		3BM
702		2BK
703		4BN
704		5BN
705		2BM
706		2BK
707		3BJ
708		3BK
709		6BK
710		3BI
711		3BJ
712		3BL
713		2BO
714		2BO
715		3BO
716		3BO
717		3BO
718		4BO
719		4BO
720		5BO
721		2BI

**VIDEO CONTROL UNIT
(X14-2590-81) (C/5)**

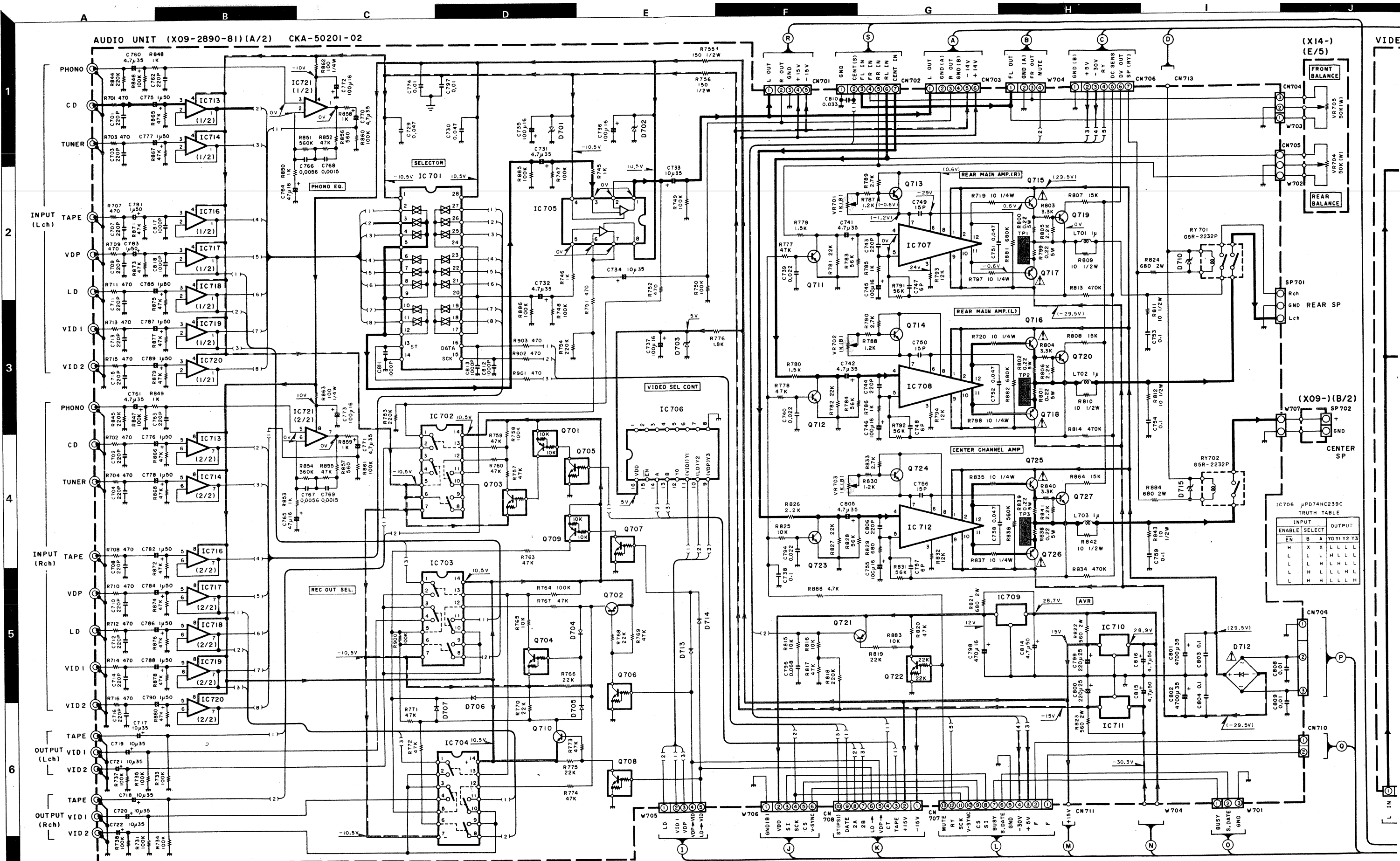
Ref. No.		Address
IC	Q	
	1	1BR
	2	2BR
	3	2BR
	4	1BR
	5	4BQ
	6	4BQ
	7	3BQ
	8	3BQ
	9	3BQ
	10	3BR
	11	3BQ
	12	2BQ
	13	3BQ
	14	2BQ
	15	2BQ
1		4BR
2		4BQ
3		4BR
4		2BR
5		1BQ
6		2BQ

**MAIN AMPLIFIER UNIT
(X07-2480-81) (A/2)**

Ref. No.		Address
IC	Q	
	401	6BU
	402	6BU
	403	7BT
	404	7BV
	405	7BS
	406	7BV
	407	7BT
	408	7BW
	409	7BU
	410	7BU
	411	5BV
	413	5BW
	414	5BW
	415	4BT
401		6BT
402		6BV
403		6BW
404		4BT

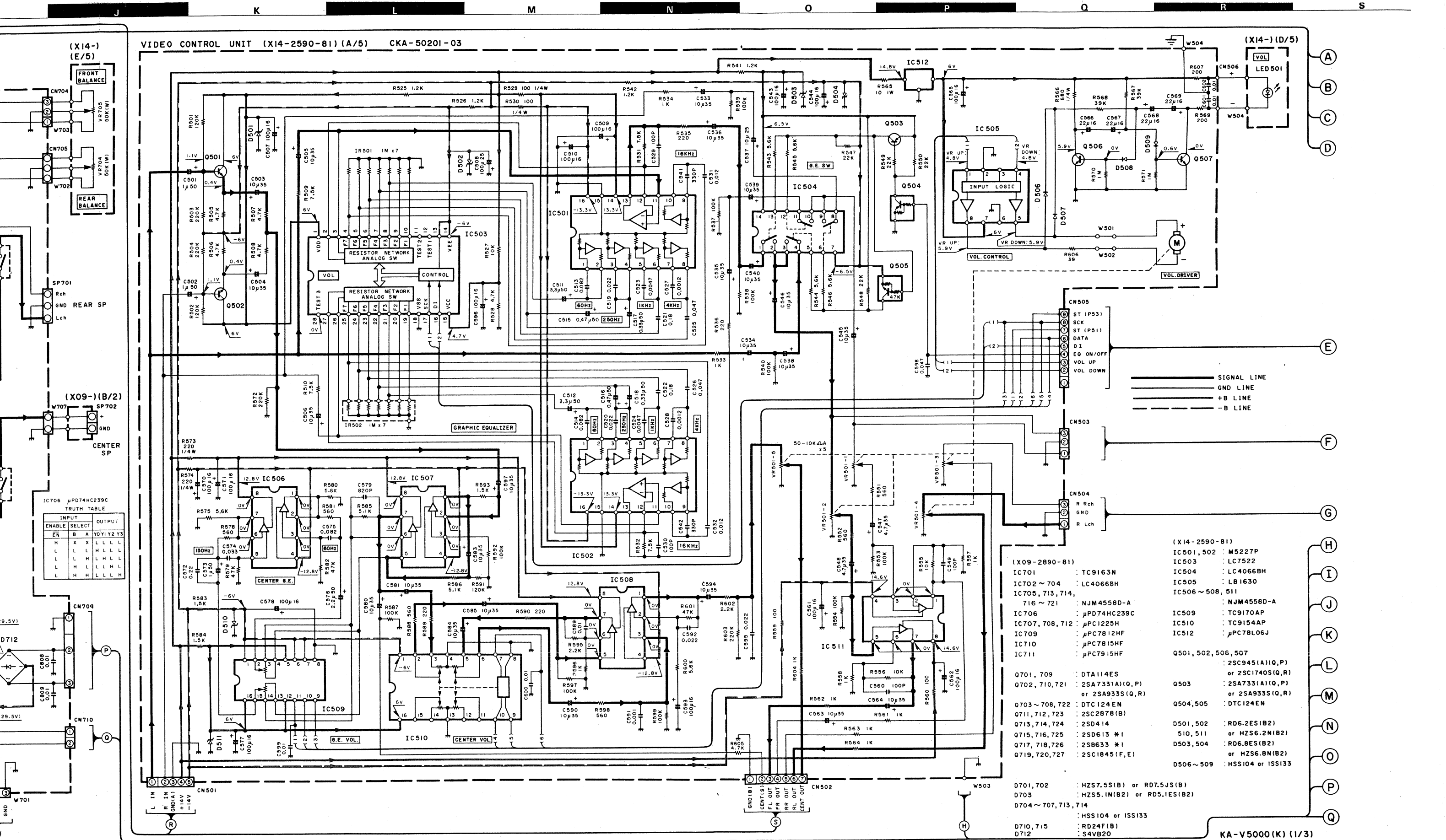
**POWER SUPPLY UNIT
(X00-2560-81) (I/9)**

Ref. No.		Address
IC	Q	
404		6BS



DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées au mètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement des valeurs inhérentes aux appareils et aux instruments de mesure individuels.



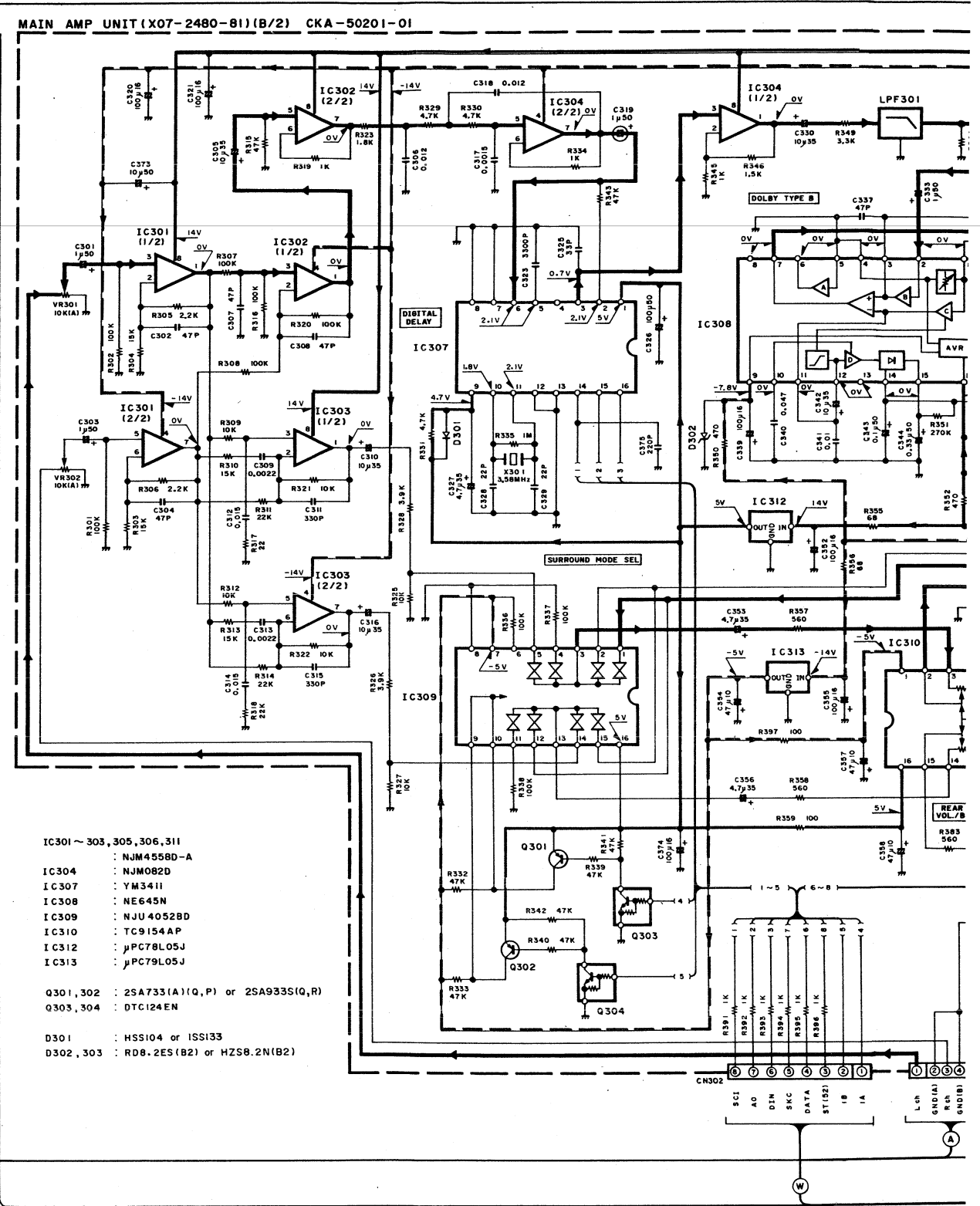
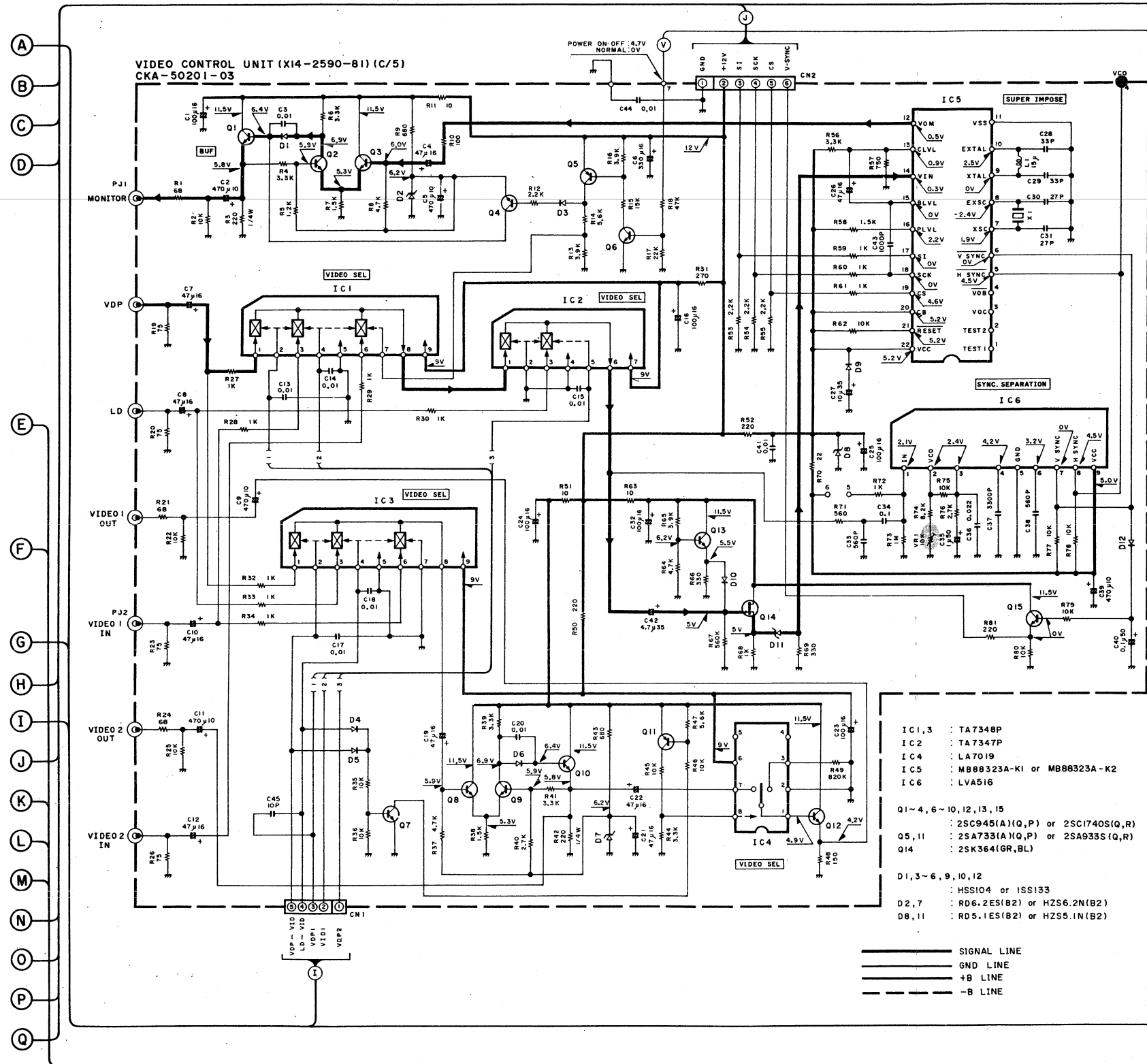
tensions c.c. doivent être mesurées avec un volt-
e à haute impédance sans signal d'entrée. Les
rs peuvent différer légèrement du fait des varia-
inhérentes aux appareils et aux instruments de
ure individuels.

Die angegebenen Gleichspannungswerte wurden mit
einem hochohmigen Spannungsmesser ohne Eingangs-
signal gemessen. Dabei schwanden die Meßwerte
aufgrund von Unterschieden zwischen einzelnen
Instrumenten oder Geräten u.U. geringfügig.

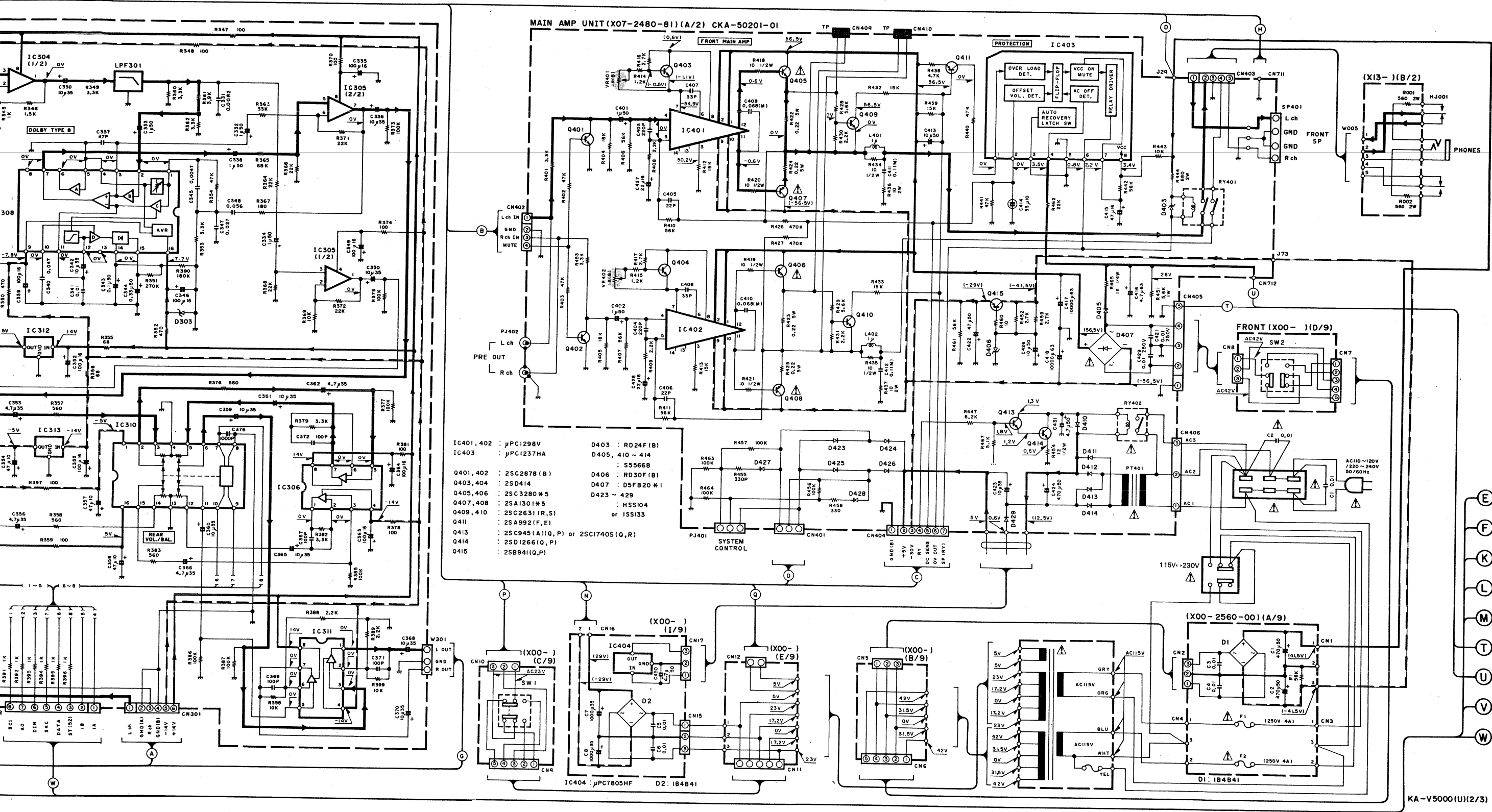
CAUTION: For continued safety, replace safety critical
components only with manufacturer's recommended parts (refer
to parts list). Δ Indicates safety critical components. To
reduce the risk of electric shock, leakage-current or resistance
measurements shall be carried out (exposed parts are accepta-
bly insulated from the supply circuit) before the appliance is
returned to the customer.

Y08-3660-81

KA-V5000
KENWOOD



DC voltages are as measured with a h
voltmeter with no signal input. Val.
slightly due to variations between in
ments or/and units.



oltages are as measured with a high impedance
ter with no signal input. Values may vary
y due to variations between individual instru-
or/and units.

Les tensions c.c. doivent être mesurées avec un volt-
mètre à haute impédance sans signal d'entrée. Les
valeurs peuvent différer légèrement du fait des varia-
tions inhérentes aux appareils et aux instruments de
mesure individuels.

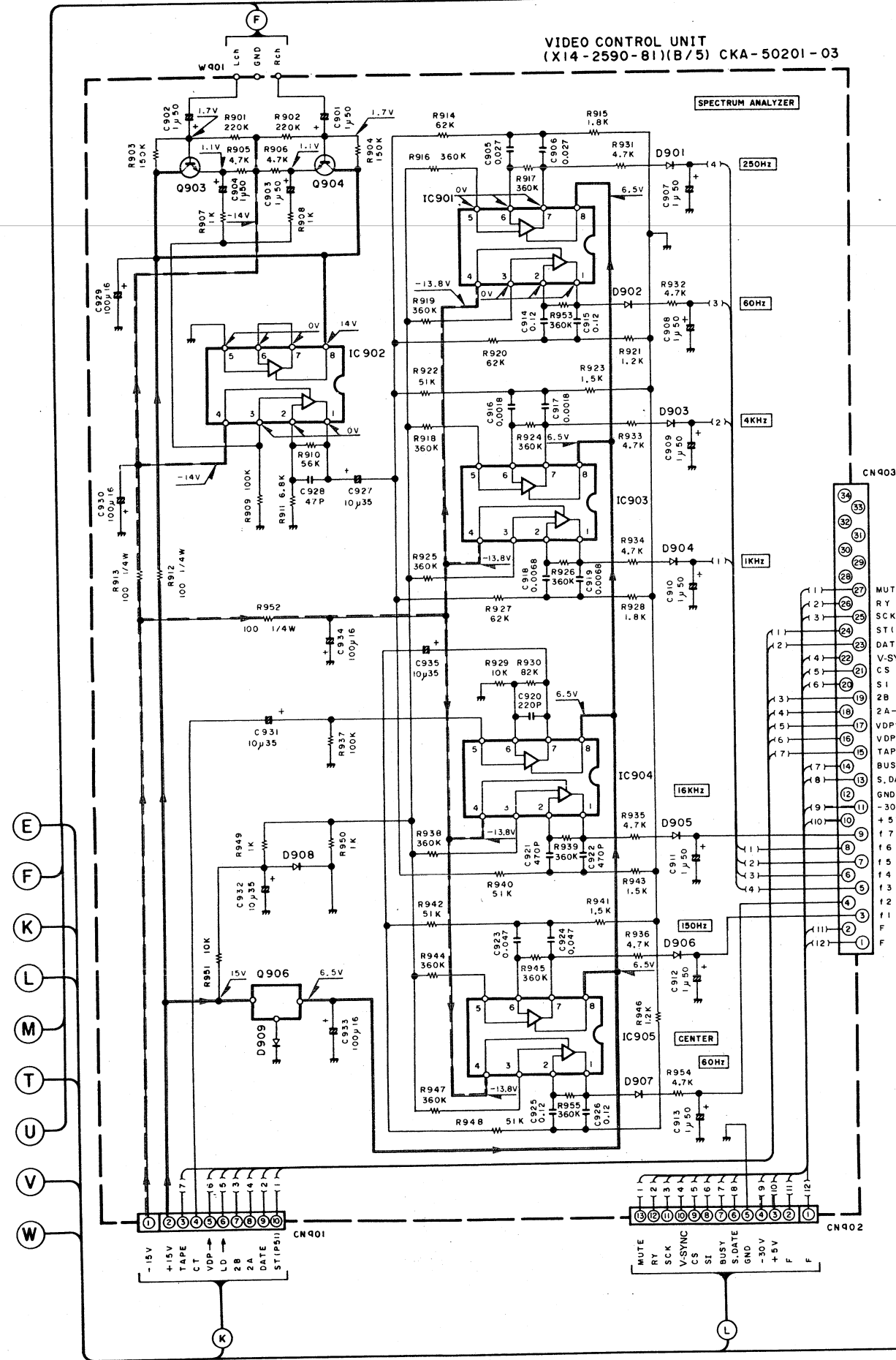
Die angegebenen Gleichspannungswerte wurden mit
einem hochohmigen Spannungsmesser ohne Eingangs-
signal gemessen. Dabei schwanden die Meßwerte
aufgrund von Unterschieden zwischen einzelnen
Instrumenten oder Geräten u.U. geringfügig.

CAUTION: For continued safety, replace safety critical com-
ponents only with manufacturer's recommended parts (refer
to parts list). Indicates safety critical components. To
reduce the risk of electric shock, leakage-current or resistance
measurements shall be carried out (exposed parts are accepta-
bly insulated from the supply circuit) before the appliance is
returned to the customer.

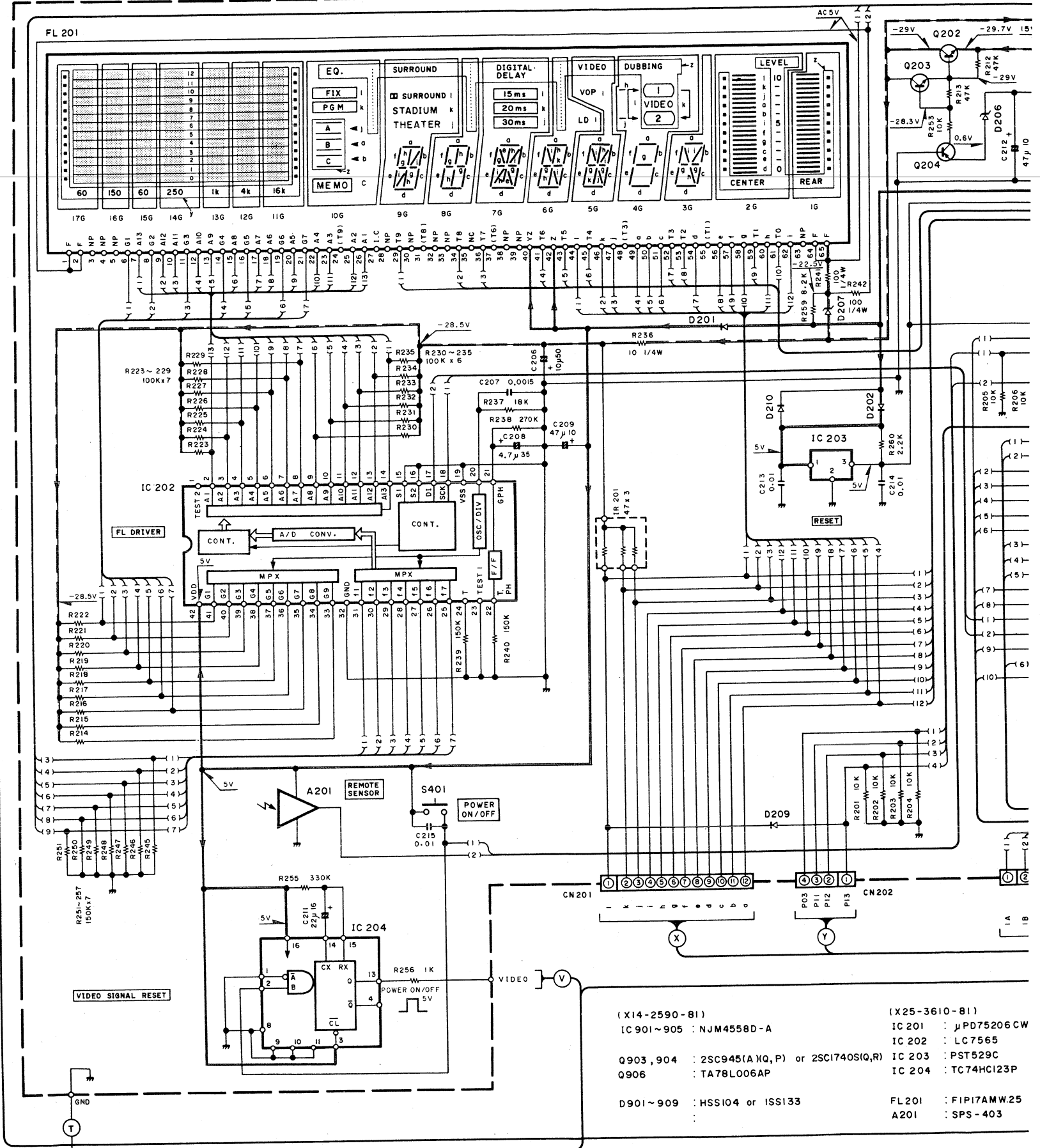
Y08-3660-81

KA-V5000
KENWOOD

VIDEO CONTROL UNIT (X14-2590-81)(B/5) CKA-50201-03



SYSTEM CONTROL UNIT (X25-3610-81) CKA-50201-04



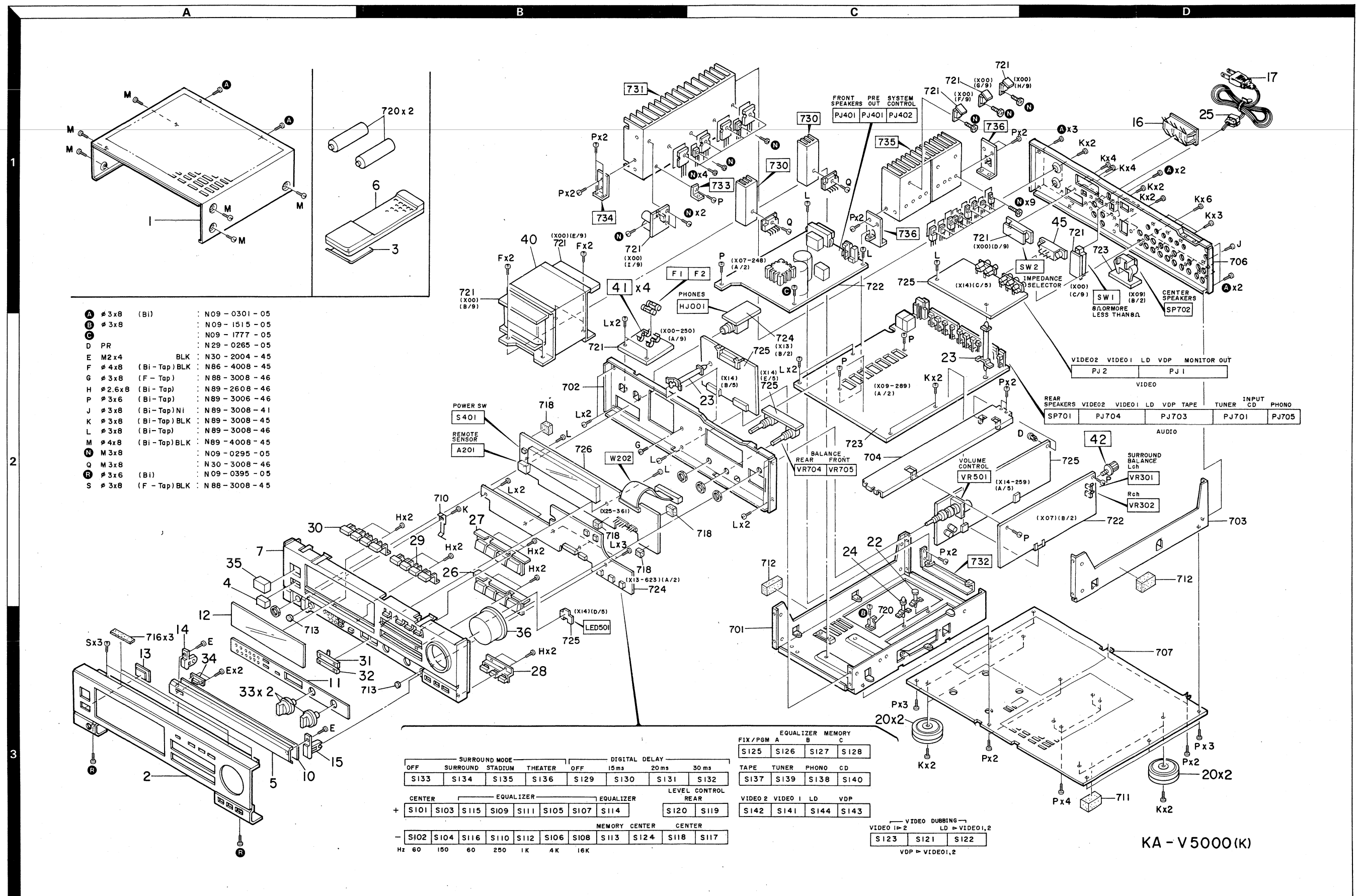
(X14-2590-81)
IC 901~905 : NJM4558D-A
Q903, 904 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q906 : TA78L006AP

D901~909 : HSS104 or ISS133

(X25-3610-81)
IC 201 : μ PD75206CW
IC 202 : LC7565
IC 203 : PST529C
IC 204 : TC74HC123P
FL201 : FIP17AMW.25
A201 : SPS-403

KA-V5000 KA-V5000

EXPLODED VIEW



KA-V5000 KA-V5000

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
KA-V5000						
1	1A	*	A01-1773-01	METALLIC CABINET ASSY		
2	3A	*	A20-5830-02	PANEL		
3	1B		A09-0073-08	BATTERY COVER(REMOTE CONTRL)		
4	2A	*	A33-0110-04	REFLECTOR		
5	3A	*	A54-0196-02	FRONT DOOR		
6	1A	*	A70-0287-05	REMOTE CONTROLLER ASSY		
7	2A	*	A22-1103-01	SUB PANEL		
10	3A	*	B03-2537-03	DRESSING PLATE		
11	3A	*	B03-2538-03	DRESSING PLATE		
12	3A	*	B10-1022-03	FRONT GLASS		
13	3A	*	B10-1023-04	FRONT GLASS		
-			B46-0094-03	WARRANTY CARD		
-			B46-0095-03	WARRANTY CARD		
-		*	B50-9366-00	INSTRUCTION MANUAL		
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
Δ C1	.2		C91-0023-05	CERAMIC 0.01UF AC250V		
14	3A	*	D10-2322-04	ARM (R)		
15	3A	*	D10-2323-04	ARM (L)		
Δ 16	1D	*	E03-0068-05	AC OUTLET		
Δ 17	1D		E30-0685-05	AC POWER CORD		
-		*	H01-8532-02	ITEM CARTON CASE		
-		*	H10-3830-01	POLYSTYRENE FOAMED FIXTURE		
-			H25-0225-04	PROTECTION BAG (850X450X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
20	3C,3D		J02-1002-05	FOOT		
22	2C	*	J19-3182-05	UNIT HOLDER		
23	2C	*	J19-3183-05	UNIT HOLDER		
24	2C	*	J19-3184-05	UNIT HOLDER		
Δ 25	1D	*	J42-0172-05	POWER CORD BUSHING		
26	2B	*	K27-1976-03	KNOB (BUTTON)(VIDEO,LD)		
27	2B	*	K27-1977-03	KNOB (BUTTON)(TAPE,AUX)		
28	3B	*	K27-1979-03	KNOB (BUTTON)(VIDEO DUBBING)		
29	2B	*	K27-1980-03	KNOB (BUTTON)(DIGITAL DELAY)		
30	2A	*	K27-1981-03	KNOB (BUTTON)(SURROUND MODE)		
31	3B	*	K27-1982-03	KNOB (BUTTON)(REAR/CENTER)		
32	3B	*	K27-1983-03	KNOB (BUTTON)(LEVEL CONTRL)		
33	3A	*	K27-1984-03	KNOB (BUTTON)(BALANCE)		
34	3A	*	K27-1986-04	KNOB (BUTTON)(PULL OPEN)		
35	2A	*	K29-3400-04	KNOB (POWER)		
36	3B	*	K29-3702-03	KNOB ASSY (VOLUM CONTRL)		
Δ 40	1B	*	L01-8726-05	POWER TRANSFORMER		
A	1A		N09-0301-05	TAPTITE SCREW (3X8)		
B	3C		N09-1515-05	TAPPING SCREW (3X8)		
C	1C		N09-1777-05	SEMS (TAPTITE SCREW)		
D	2D	*	N29-0265-05	PUSH RIVET		
R	3A		N09-0395-05			
Δ 45	1D		S31-2126-05	SLIDE SWITCH (POWER TYPE)		

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POWER SUPPLY UNIT (X00-2560-81)						
C1	.2		CE04KW1H471M	ELECTRO 470UF 50WV		
C3	-6		CK45FF1H103Z	CERAMIC 0.010UF Z		
C7	.8		CE04KW1V102M	ELECTRO 1000UF 35WV		
Δ F1	.2	1B,1C	F06-4029-05	FUSE (250V 4A)		
41		2B	J13-0054-05	FUSE CLIP		
Δ SW1	.2		S31-2127-05	SLIDE SWITCH (POWER TYPE)		
D1	.2		1B4B41	DIODE		
MAIN AMPLIFIER UNIT (X07-2480-81)						
C301			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C302			CC45FSL1H470J	CERAMIC 47PF J		
C303			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C304			CC45FSL1H470J	CERAMIC 47PF J		
C305			CE04KW1V100M	ELECTRO 10UF 35WV		
C306			CF92FV1H123J	MF 0.012UF J		
C307,308			CC45FSL1H470J	CERAMIC 47PF J		
C309			CF92FV1H222J	MF 2200PF J		
C310			CE04KW1V100M	ELECTRO 10UF 35WV		
C311			CC45FSL1H331J	CERAMIC 330PF J		
C312			CF92FV1H153J	MF 0.015UF J		
C313			CF92FV1H222J	MF 2200PF J		
C314			CF92FV1H153J	MF 0.015UF J		
C315			CC45FSL1H331J	CERAMIC 330PF J		
C316			CE04KW1V100M	ELECTRO 10UF 35WV		
C317			CF92FV1H152J	MF 1500PF J		
C318			CF92FV1H123J	MF 0.012UF J		
C319		*	C90-1349-05	NP-ELEC 1UF 50WV		
C320,321			CE04KW1C101M	ELECTRO 100UF 16WV		
C323			CF92FV1H332J	MF 3300PF J		
C325		*	CC45FSL1H330D	CERAMIC 33PF D		
C326		*	CE04KW1H101M	ELECTRO 100UF 50WV		
C327			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C328,329			CC45FSL1H220J	CERAMIC 22PF J		
C330			CE04KW1V100M	ELECTRO 10UF 35WV		
C331			CF92FV1H822J	MF 8200PF J		
C332-334			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C335			CE04KW1C101M	ELECTRO 100UF 16WV		
C336			CE04KW1V100M	ELECTRO 10UF 35WV		
C337			CC45FSL1H470J	CERAMIC 47PF J		
C338			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C339			CE04KW1C101M	ELECTRO 100UF 16WV		
C340			CF92FV1H473J	MF 0.047UF J		
C341			CF92FV1H103J	MF 0.010UF J		
C342			CE04KW1V100M	ELECTRO 10UF 35WV		
C343			CE04KW1H0R1M	ELECTRO 0.1UF 50WV		
C344			CE04KW1HR33M	ELECTRO 0.33UF 50WV		
C345			CF92FV1H472J	MF 4700PF J		
C346			CE04KW1C101M	ELECTRO 100UF 16WV		
C347			CF92FV1H273J	MF 0.027UF J		
C348			CF92FV1H562J	MF 5600PF J		
C349			CE04KW1C101M	ELECTRO 100UF 16WV		

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C350			CE04KW1V100M	ELECTR0 10UF 35WV		
C352			CE04KW1C101M	ELECTR0 100UF 16WV		
C353			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C354			CE04KW1A470M	ELECTR0 47UF 10WV		
C355			CE04KW1C101M	ELECTR0 100UF 16WV		
C356			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C357,358			CE04KW1A470M	ELECTR0 47UF 10WV		
C359-361			CE04KW1V100M	ELECTR0 10UF 35WV		
C362			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C363,364			CE04KW1C101M	ELECTR0 100UF 16WV		
C365			CE04KW1V100M	ELECTR0 10UF 35WV		
C366			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C367			CC45FSL1H101J	CERAMIC 100PF J		
C368			CE04KW1V100M	ELECTR0 10UF 35WV		
C369			CC45FSL1H101J	CERAMIC 100PF J		
C370			CE04KW1V100M	ELECTR0 10UF 35WV		
C371,372			CC45FSL1H101J	CERAMIC 100PF J		
C373			CE04KW1H100M	ELECTR0 10UF 50WV		
C374			CE04KW1C101M	ELECTR0 100UF 16WV		
C375			CC45FSL1H221J	CERAMIC 220PF J		
C376			CK45FB1H102K	CERAMIC 1000PF K		
C401,402			CE04KW1H010M	ELECTR0 1.0UF 50WV		
C403,404			CC45FSL1H221J	CERAMIC 220PF J		
C405,406			CC45FSL1H220J	CERAMIC 22PF J		
C407,408			CC45FSL1H330J	CERAMIC 33PF J		
C409,410			CF92FV1H683J	MF 0.068UF J		
C411,412			CF92FV1H104J	MF 0.10UF J		
C413			CE04KW1H100M	ELECTR0 10UF 50WV		
C414		*	C90-1396-05	NP-ELEC 33UF 10WV		
C415			CE04KW1C470M	ELECTR0 47UF 16WV		
C416			CE04KW1J4R7M	ELECTR0 4.7UF 63WV		
C417,418		*	C90-1775-05	ELECTR0 10000UF 63WV		
C421			C91-0023-05	CERAMIC 0.01UF AC250V		
C422			CE04KW1H470M	ELECTR0 47UF 50WV		
C423			CE04KW1V100M	ELECTR0 10UF 35WV		
C424			CE04KW1H471M	ELECTR0 470UF 50WV		
C426			CE04KW1H100M	ELECTR0 10UF 50WV		
C427,428			CE04KW1C220M	ELECTR0 22UF 16WV		
C429			C91-0023-05	CERAMIC 0.01UF AC250V		
C430,431			CE04KW1H4R7M	ELECTR0 4.7UF 50WV		
42	2D	*	E21-0021-05	BINDING POST		
PJ401	1C	*	E11-0195-05	MINIATURE PHONE JACK (SYSTEM C0		
PJ402	1C		E13-0229-05	PHONE JACK (2P) (PRE OUT)		
SP401	1C		E20-0459-05	LOCK TERMINAL BOARD (FRONT SP)		
L401,402		*	L39-0188-05	PHASE-COMPENSATION COIL		
LPF301		*	L79-0786-05	LC FILTER		
PT401		*	L01-8742-05	POWER TRANSFORMER		
X301			L77-1140-15	CRYSTAL RESONATOR		
N			N09-0295-05	HEXAGON HEAD BOLT (M3X8,+)		
R418-421			RD14DB2H100J	SMALL-RD 10 J 1/2W		
R422-425			R92-0167-05	METAL-PLATE. 0.22 K 5W		
R434,435			RD14DB2H100J	SMALL-RD 10 J 1/2W		
R436,437			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R444			RS14KB3D681J	FL-PROOF RS 680 J 2W		

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R451 R454 VR301,302 VR401,402		*	RS14KB3A562J	FL-PROOF RS 5.6K J 1W		
		*	RD14DB2H120J	SMALL-RD 12 J 1/2W		
		*	R05-3012-05	POTENTIOMETER		
			R12-1083-05	TRIMMING POT.		
RY401 RY402			S51-2078-05	MAGNETIC RELAY		
			S51-1036-05	MAGNETIC RELAY		
D301 D301 D302,303 D302,303 D403			HSS104	DIODE		
			1SS133	DIODE		
			HZS8.2N(B2)	ZENER DIODE		
			RD8.2ES(B2)	ZENER DIODE		
			RD24F(B)	ZENER DIODE		
D405 D406 D407 D410-414 D423-429		*	S5566B	DIODE		
		*	RD30F(B)	ZENER DIODE		
			D5FB20*1	DIODE		
			S5566B	DIODE		
			HSS104	DIODE		
D423-429 IC301-303 IC304 IC305,306 IC307			1SS133	DIODE		
		*	NJM4558D-A	IC(OP AMP X2)		
		*	NJM082D	IC(FET OP AMP X2)		
		*	NJM4558D-A	IC(OP AMP X2)		
		*	YM3411	IC(DIGITAL DELAY IC)		
IC308 IC309 IC310 IC311 IC312		*	NE645N	IC(DOLBY B PROCESSOR)		
		*	NJU4052BD	IC(4CH MPX/DE-MPX)		
			TC9154AP	IC(2CH ELECTRONIC VOLUME)		
			NJM4558D-A	IC(OP AMP X2)		
			UPC78L05J	IC(VOLTAGE REGULATOR/ +5V)		
IC313 IC401,402 IC403 IC404 Q301,302		*	UPC79L05J	IC(VOLTAGE REGULATOR/ -5V)		
		*	UPC1298V	IC(POWER AMP DRIVER)		
			UPC1237HA	IC(POWER AMP)		
			UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)		
			2SA733(A) (Q,P)	TRANSISTOR		
Q301,302 Q303,304 Q401,402 Q403,404 Q405,406			2SA933S(Q,R)	TRANSISTOR		
			DTC124EN	DIGITAL TRANSISTOR		
			2SC287B(B)	TRANSISTOR		
			2SD414	TRANSISTOR		
			2SC3280*5	TRANSISTOR		
Q407,408 Q409,410 Q411 Q413 Q413			2SA1301*5	TRANSISTOR		
			2SC2631(R,S)	TRANSISTOR		
			2SA992(F,E)	TRANSISTOR		
			2SC1740S(Q,R)	TRANSISTOR		
			2SC945(A) (Q,P)	TRANSISTOR		
Q414 Q415			2SD1266(Q,P)	TRANSISTOR		
			2SB941(Q,P)	TRANSISTOR		
AUDIO UNIT (X09-2890-81)						
C701-704 C707-716 C717-722 C729,730 C731,732			CC45FSL1H221J	CERAMIC 220PF J		
			CC45FSL1H221J	CERAMIC 220PF J		
			CE04KW1V100M	ELECTRO 10UF 35WV		
			CK45FF1H473Z	CERAMIC 0.047UF Z		
			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C733,734 C735-737 C738 C739,740 C741,742			CE04KW1V100M	ELECTRO 10UF 35WV		
			CE04KW1C101M	ELECTRO 100UF 16WV		
			CF92FV1H104J	MF 0.10UF J		
			CF92FV1H223J	MF 0.022UF J		
			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		

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C743,744 C745,746 C747,748 C749,750 C751,752			CC45FSL1H221J CE04KW1C101M CC45FSL1H060D CC45FSL1H150J CF92FV1H473J	CERAMIC 220PF J ELECTR0 100UF 16WV CERAMIC 6.0PF D CERAMIC 15PF J MF 0.047UF J		
C753,754 C755 C756 C757 C758			CF92FV1H104J CE04KW1C101M CC45FSL1H150J CC45FSL1H060D CF92FV1H473J	MF 0.10UF J ELECTR0 100UF 16WV CERAMIC 15PF J CERAMIC 6.0PF D MF 0.047UF J		
C759 C760 C761 C762,763 C764,765			CF92FV1H104J CE04KW1V4R7M CE04KW1V4R7M CC45FSL1H221J CE04KW1C470M	MF 0.10UF J ELECTR0 4.7UF 35WV ELECTR0 4.7UF 35WV CERAMIC 220PF J ELECTR0 47UF 16WV		
C766,767 C768,769 C770,771 C772,773 C774			CF92FV1H562J CF92FV1H152J CE04KW1V4R7M CE04KW1C101M CK45FF1H103Z	MF 5600PF J MF 1500PF J ELECTR0 4.7UF 35WV ELECTR0 100UF 16WV CERAMIC 0.010UF Z		
C775-778 C781-790 C794 C796 C797			CE04KW1H010M CE04KW1H010M CF92FV1H223J CF92FV1H683J CK45FF1H103Z	ELECTR0 1.0UF 50WV ELECTR0 1.0UF 50WV MF 0.022UF J MF 0.068UF J CERAMIC 0.010UF Z		
C798 C799,800 C801,802 C803,804 C805		*	CE04KW1C471M CE04KW1E221M C90-1776-05 CF92FV1H104J CE04KW1V4R7M	ELECTR0 470UF 16WV ELECTR0 220UF 25WV ELECTR0 4700UF 35WV MF 0.10UF J ELECTR0 4.7UF 35WV		
C806 C808,809 C810 C811-813 C814-816			CC45FSL1H221J CK45FF1H103Z CF92FV1H333J CK45FB1H102K CE04KW1H4R7M	CERAMIC 220PF J CERAMIC 0.010UF Z MF 0.033UF J CERAMIC 1000PF K ELECTR0 4.7UF 50WV		
C817,818			CK45FB1H102K	CERAMIC 1000PF K		
PJ701 PJ703,704 PJ705 SP701 SP702	2D 2D 2D 2D		E13-0497-05 E13-0814-05 E13-0229-05 E20-0475-05 E20-0236-05	PHONO JACK (4P) TUNER,CD PHONO JACK (8P) TAPE,VIDEO PHONO JACK (2P) PHONO LOCK TERMINAL BOARD(REAR SP) LOCK TERMINAL BOARD(CENTER SP)		
L701-703		*	L39-0188-05	PHASE-COMPENSATION COIL		
N			N09-0295-05	HEXAGON HEAD BOLT(M3XB,+)		
R755,756 R799-802 R809-812 R821 R822,823			RD14DB2H151J R92-0167-05 RD14DB2H100J RS14KB3D681J RS14KB3D561J	SMALL-RD 150 J 1/2W METAL-PLATE 0.22 K 5W SMALL-RD 10 J 1/2W FL-PROOF RS 680 J 2W FL-PROOF RS 560 J 2W		
R824 R838,839 R842,843 R884 VR701-703			RS14KB3D681J R92-0167-05 RD14DB2H100J RS14KB3D681J R12-1083-05	FL-PROOF RS 680 J 2W METAL-PLATE 0.22 K 5W SMALL-RD 10 J 1/2W FL-PROOF RS 680 J 2W TRIMMING POT.		

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RY701,702			SS1-2078-05	MAGNETIC RELAY		
D701,702			HZS7.5S(B)	ZENER DIODE		
D701,702			RD7.5JS(B)	ZENER DIODE		
D703			HZS5.1N(B2)	ZENER DIODE		
D703			RD5.1ES(B2)	ZENER DIODE		
D704-707			HSS104	DIODE		
D704-707			1SS133	DIODE		
D710			RD24F(B)	ZENER DIODE		
D712			S4VB20	DIODE		
D713,714			HSS104	DIODE		
D713,714			1SS133	DIODE		
D715			RD24F(B)	ZENER DIODE		
IC701			TC9163N	IC(BILATERAL SWITCH X16)		
IC702-704			LC4066BH	IC(BILATERAL SWITCH X4)		
IC705			NJM4558D-A	IC(OP AMP X2)		
IC706		*	UPD74HC239C	IC(2-4 X2 LINE DECODER/DE-MPX)		
IC707,708		*	UPC1225H	IC(POWER AMP DRIVER)		
IC709			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
IC710			UPC7815HF	IC(VOLTAGE REGULATOR/ +15V)		
IC711			UPC7915HF	IC(VOLTAGE REGULATOR/ -15V)		
IC712		*	UPC1225H	IC(POWER AMP DRIVER)		
IC713,714			NJM4558D-A	IC(OP AMP X2)		
IC716-721			NJM4558D-A	IC(OP AMP X2)		
Q701			DTA114ES	DIGITAL TRANSISTOR		
Q702			2SA733(A)(Q,P)	TRANSISTOR		
Q702			2SA933S(Q,R)	TRANSISTOR		
Q703-708			DTC124EN	DIGITAL TRANSISTOR		
Q709			DTA114ES	DIGITAL TRANSISTOR		
Q710			2SA733(A)(Q,P)	TRANSISTOR		
Q710			2SA933S(Q,R)	TRANSISTOR		
Q711,712			2SC2878(B)	TRANSISTOR		
Q713,714			2SD414	TRANSISTOR		
Q715,716			2SD613*1	TRANSISTOR		
Q717,718			2SB633*1	TRANSISTOR		
Q719,720			2SC1845(F,E)	TRANSISTOR		
Q721			2SA733(A)(Q,P)	TRANSISTOR		
Q721			2SA933S(Q,R)	TRANSISTOR		
Q722			DTC124EN	DIGITAL TRANSISTOR		
Q723			2SC2878(B)	TRANSISTOR		
Q724			2SD414	TRANSISTOR		
Q725			2SD613*1	TRANSISTOR		
Q726			2SB633*1	TRANSISTOR		
Q727			2SC1845(F,E)	TRANSISTOR		
SWITCH UNIT (X13-6230-00)						
HJ001	1B,1C	*	E11-0196-05	PHONE JACK		
R1 ,2			RS14DB3D561J	FL-PROOF RS 560 J 2W		
S101-144			S40-1064-05	PUSH SWITCH		
D101-116			HSS104	DIODE		
D101-116			1SS133	DIODE		
VIDEO CONTROL UNIT (X14-2590-81)						
LED501		*	B30-1280-05	LED		

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C1			CE04KW1C101M	ELECTR0 100UF 16WV		
C2			CE04KW1A471M	ELECTR0 470UF 10WV		
C3			CF92FV1H103J	MF 0.010UF J		
C4			CE04KW1C470M	ELECTR0 47UF 16WV		
C5			CE04KW1A471M	ELECTR0 470UF 10WV		
C6			CE04KW1C331M	ELECTR0 330UF 16WV		
C7 ,8			CE04KW1C470M	ELECTR0 47UF 16WV		
C9			CE04KW1A471M	ELECTR0 470UF 10WV		
C10			CE04KW1C470M	ELECTR0 47UF 16WV		
C11			CE04KW1A471M	ELECTR0 470UF 10WV		
C12			CE04KW1C470M	ELECTR0 47UF 16WV		
C13 -15			CF92FV1H103J	MF 0.010UF J		
C16			CE04KW1C101M	ELECTR0 100UF 16WV		
C17 ,18			CF92FV1H103J	MF 0.010UF J		
C19			CE04KW1C470M	ELECTR0 47UF 16WV		
C20			CF92FV1H103J	MF 0.010UF J		
C21 ,22			CE04KW1C470M	ELECTR0 47UF 16WV		
C23 -25			CE04KW1C101M	ELECTR0 100UF 16WV		
C26			CE04KW1C470M	ELECTR0 47UF 16WV		
C27			CE04KW1V100M	ELECTR0 10UF 35WV		
C28 ,29			CC45FSL1H330J	CERAMIC 33PF J		
C30 ,31			CC45FCH1H270J	CERAMIC 27PF J		
C32			CE04KW1C101M	ELECTR0 100UF 16WV		
C33			CQ09FS1H561J	POLYSTY 560PF J		
C34			CF92FV1H104J	MF 0.10UF J		
C35			CE04KW1H010M	ELECTR0 1.0UF 50WV		
C36			CF92FV1H223J	MF 0.022UF J		
C37			CF92FV1H332J	MF 3300PF J		
C38			CQ09FS1H561J	POLYSTY 560PF J		
C39			CE04KW1A471M	ELECTR0 470UF 10WV		
C40			CE04KW1H0R1M	ELECTR0 0.1UF 50WV		
C41			CF92FV1H103J	MF 0.010UF J		
C42			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C43			CK45FB1H102K	CERAMIC 1000PF K		
C44			CK45FF1H103Z	CERAMIC 0.010UF Z		
C45			CC45FSL1H100D	CERAMIC 10PF D		
C501,502			CE04KW1H010M	ELECTR0 1.0UF 50WV		
C503-506			CE04KW1V100M	ELECTR0 10UF 35WV		
C507			CE04KW1C101M	ELECTR0 100UF 16WV		
C508			CE04KW1E101M	ELECTR0 100UF 25WV		
C509,510			CE04KW1C101M	ELECTR0 100UF 16WV		
C511,512			CE04KW1H3R3M	ELECTR0 3.3UF 50WV		
C513,514			CF92FV1H823J	MF 0.082UF J		
C515,516			CE04KW1HR47M	ELECTR0 0.47UF 50WV		
C517,518			CE04KW1HR33M	ELECTR0 0.33UF 50WV		
C519,520			CF92FV1H223J	MF 0.022UF J		
C521,522			CF92FV1H184J	MF 0.18UF J		
C523,524			CF92FV1H472J	MF 4700PF J		
C525,526			CF92FV1H473J	MF 0.047UF J		
C527,528			CF92FV1H122J	MF 1200PF J		
C529,530			CC45FSL1H101J	CERAMIC 100PF J		
C531,532			CF92FV1H123J	MF 0.012UF J		
C533-540			CE04KW1V100M	ELECTR0 10UF 35WV		
C541,542			CC45FSL1H331J	CERAMIC 330PF J		
C543,544			CE04KW1C101M	ELECTR0 100UF 16WV		

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C545,546 C547,548 C549 C560 C561,562			CE04KW1V100M CE04KW1V4R7M CC45FSL1H101J CC45FSL1H101J CE04KW1C101M	ELECTR0 10UF 35WV ELECTR0 4.7UF 35WV CERAMIC 100PF J CERAMIC 100PF J ELECTR0 100UF 16WV		
C563,564 C565 C566-569 C570,571 C572			CE04KW1V100M CE04KW1C101M CE04KW1C220M CE04KW1C101M CF92FV1H224J	ELECTR0 10UF 35WV ELECTR0 100UF 16WV ELECTR0 22UF 16WV ELECTR0 100UF 16WV MF 0.22UF J		
C573 C574 C575 C576 C577,578			CE04KW1H010M CF92FV1H333J CF92FV1H823J CE04KW1H2R2M CE04KW1C101M	ELECTR0 1.0UF 50WV MF 0.033UF J MF 0.082UF J ELECTR0 2.2UF 50WV ELECTR0 100UF 16WV		
C579 C580,581 C583-585 C589 C590			CK45FB1H821K CE04KW1V100M CE04KW1V100M CF92FV1H103J CE04KW1V100M	CERAMIC 820PF K ELECTR0 10UF 35WV ELECTR0 10UF 35WV MF 0.010UF J ELECTR0 10UF 35WV		
C591 C592 C593 C594 C595			CF92FV1H102J CF92FV1H223J CE04KW1C101M CE04KW1V100M CF92FV1H223J	MF 1000PF J MF 0.022UF J ELECTR0 100UF 16WV ELECTR0 10UF 35WV MF 0.022UF J		
C596 C597 C598 C599-602 C901-904			CE04KW1C101M CE04KW1V100M CF92FV1H473J CK45FF1H103Z CE04KW1H010M	ELECTR0 100UF 16WV ELECTR0 10UF 35WV MF 0.047UF J CERAMIC 0.010UF Z ELECTR0 1.0UF 50WV		
C905,906 C907-913 C914,915 C916,917 C918,919			CF92FV1H273J CE04KW1H010M CF92FV1H124J CF92FV1H182J CF92FV1H682J	MF 0.027UF J ELECTR0 1.0UF 50WV MF 0.12UF J MF 1800PF J MF 6800PF J		
C920 C921,922 C923,924 C925,926 C927			CC45FSL1H221J CK45FB1H471K CF92FV1H473J CF92FV1H124J CE04KW1V100M	CERAMIC 220PF J CERAMIC 470PF K MF 0.047UF J MF 0.12UF J ELECTR0 10UF 35WV		
C928 C929,930 C931,932 C933,934 C935			CC45FSL1H470J CE04KW1C101M CE04KW1V100M CE04KW1C101M CE04KW1V100M	CERAMIC 47PF J ELECTR0 100UF 16WV ELECTR0 10UF 35WV ELECTR0 100UF 16WV ELECTR0 10UF 35WV		
PJ1 PJ2		*	E13-0478-05 E13-0309-05	PHONE JACK PHONE JACK		
L1 X1		*	L40-1501-17 L77-1131-05	SMALL FIXED INDUCTOR(15UH,K) CRYSTAL RESONATOR		
IP501,502 R565 VR1 VR501 VR704,705		*	R90-0834-05 RS14KB3A100J R12-3126-05 R29-4017-05 R05-4007-05	MULTIPLE RESISTOR(1.0M X7) FL-PROOF RS 10 J 1W TRIMMING POT. POTENTIOMETER POTENTIOMETER		

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D1			HSS104	DIODE		
D1			1SS133	DIODE		
D2			HZS6.2N(B2)	ZENER DIODE		
D2			RD6.2ES(B2)	ZENER DIODE		
D3 -6			HSS104	DIODE		
D3 -6			1SS133	DIODE		
D7			HZS6.2N(B2)	ZENER DIODE		
D7			RD6.2ES(B2)	ZENER DIODE		
D8			HZS5.1N(B2)	ZENER DIODE		
D8			RD5.1ES(B2)	ZENER DIODE		
D9 ,10			HSS104	DIODE		
D9 ,10			1SS133	DIODE		
D11			HZS5.1N(B2)	ZENER DIODE		
D11			RD5.1ES(B2)	ZENER DIODE		
D12			HSS104	DIODE		
D12			1SS133	DIODE		
D501,502			HZS6.2N(B2)	ZENER DIODE		
D501,502			RD6.2ES(B2)	ZENER DIODE		
D503,504			HZS6.8N(B2)	ZENER DIODE		
D503,504			RD6.8ES(B2)	ZENER DIODE		
D506-509			HSS104	DIODE		
D506-509			1SS133	DIODE		
D510,511			HZS6.2N(B2)	ZENER DIODE		
D510,511			RD6.2ES(B2)	ZENER DIODE		
D901-909			HSS104	DIODE		
D901-909			1SS133	DIODE		
IC1		*	TA7348P	IC(3-INPUT SWITCH)		
IC2		*	TA7347P	IC(2-INPUT SWITCH)		
IC3		*	TA7348P	IC(3-INPUT SWITCH)		
IC4		*	LA7019	IC(ELECTRONIC SWITCH)		
IC5		*	MB88323A-K1	IC(DISPLAY CONTROLLER)		
IC5		*	MB88323A-K2	IC(DISPLAY CONTROLLER)		
IC6		*	LVA516	IC(SYNC SEPARATION)		
IC501,502			M5227P	IC(5CH GRAPHIC EQUALIZER)		
IC503			LC7522	IC(7CH GRAPHIC EQUALIZER)		
IC504			LC4066BH	IC(BILATERAL SWITCH X4)		
IC505			LB1630	IC(MOTOR DRIVER)		
IC506-508			NJM4558D-A	IC(OP AMP X2)		
IC509			TC9170AP	IC(GRAPHIC EQUALIZER)		
IC510			TC9154AP	IC(2CH ELECTRONIC VOLUME)		
IC511			NJM4558D-A	IC(OP AMP X2)		
IC512		*	UPC78L06J	IC(VOLTAGE REGULATOR/ +6V)		
IC901-905			NJM4558D-A	IC(OP AMP X2)		
Q1 -4			2SC1740S(Q,R)	TRANSISTOR		
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		
Q5			2SA733(A)(Q,P)	TRANSISTOR		
Q5			2SA933S(Q,R)	TRANSISTOR		
Q6 -10			2SC1740S(Q,R)	TRANSISTOR		
Q6 -10			2SC945(A)(Q,P)	TRANSISTOR		
Q11			2SA733(A)(Q,P)	TRANSISTOR		
Q11			2SA933S(Q,R)	TRANSISTOR		
Q12 ,13			2SC1740S(Q,R)	TRANSISTOR		
Q12 ,13			2SC945(A)(Q,P)	TRANSISTOR		
Q14			2SK364(GR,BL)	FET		
Q15			2SC1740S(Q,R)	TRANSISTOR		

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Q15 Q501,502 Q501,502 Q503 Q503			2SC945(A)(Q,P) 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA933S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q504,505 Q506,507 Q506,507 Q903,904 Q903,904			DTC124EN 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SC1740S(Q,R) 2SC945(A)(Q,P)	DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q906			TA78L006AP	IC(VOLTAGE REGULATOR/ +6V)		
DISPLAY UNIT (X25-3610-81)						
C201,202 C203 C204 C205 C206		*	CC45FSL1H330J C91-1404-05 CK45FB1H102K CE04DW1H010M CE04DW1H100M	CERAMIC 33PF J ELECTRO 0.047UF 5.5WV CERAMIC 1000PF K ELECTRO 1.0UF 50WV ELECTRO 10UF 50WV		
C207 C208 C209 C210 C211		*	CF92FV1H152J CE04DW1V4R7M CE04DW1A470M CE04DW1A101M CE04DW1C220M	MF 1500PF J ELECTRO 4.7UF 35WV ELECTRO 47UF 10WV ELECTRO 100UF 10WV ELECTRO 22UF 16WV		
C212 C213-215 C216			CE04DW1A470M CK45FF1H103Z CK45FF1H473Z	ELECTRO 47UF 10WV CERAMIC 0.010UF Z CERAMIC 0.047UF Z		
X201			L77-1118-05	CRYSTAL RESONATOR		
IR201			R90-0202-05	MULTI-COMP 47KX4 J 1/6W		
S401			S40-1064-05	PUSH SWITCH		
A201 D201-203 D201-203 D204 D204		*	SPS-403 HSS104 1SS133 HZS9.1N(B2) RD9.1ES(B2)	IC(REMOTE SENSOR) DIODE DIODE ZENER DIODE ZENER DIODE		
D205 D205 D206 D206 D207			HSS104 1SS133 HZS5.1N(B2) RD5.1ES(B2) HZS6.8N(B2)	DIODE DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
D207 D208-210 D208-210 FL201 IC201		*	RD6.8ES(B2) HSS104 1SS133 FIP17AMW25 UPD75206CW-104	ZENER DIODE DIODE DIODE FLUORESCENT INDICATOR TUBE IC(MICROPROCESSOR)		
IC202 IC203 IC204 Q201 Q201		*	LC7565 PST529C TC74HC123P 2SC1740S(Q,R) 2SC945(A)(Q,P)	IC(GRAPHIC EQ FL DISPLAY DR) IC(SYSTEM RESET) IC(DUAL MONO MULTI) TRANSISTOR TRANSISTOR		
Q202 Q203 Q203 Q204			2SD882(Q,P) 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		

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Q204 Q205			2SA933S(Q,R) 2SA992(F,E)	TRANSISTOR TRANSISTOR		

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KA-V5000

SPECIFICATIONS

< Audio Section: Front >

Power Output

70 watts per channel minimum RMS, both channels driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion.

Total harmonic distortion

LINE input to speaker output

(20 Hz to 20,000 Hz) ... 0.09% at 70 W into 8 ohms

(1 kHz) ... 0.05% at 70 W into 8 ohms

Frequency response

10 Hz to 100 kHz/ +0 dB, -3 dB

PHONO

(RIAA standard curve) ... 20 Hz to 20 kHz/ ± 0.3 dB

Input sensitivity/impedance

PHONO (MM) ... 2.5 mV 47 kohms

Except PHONO ... 150 mV 47 kohms

Signal to noise ratio (IHF-A)

PHONO (MM) ... 70 dB (2.5 mV)

Except PHONO ... 90 dB (150 mV)

Output level/impedance

TAPE REC (pin) ... 150 mV 2.2 kohms

PRE OUT ... 1 V 1 kohm

Graphic equalizer

Center frequency ... 60 Hz, 250 Hz, 1 kHz, 4 kHz,
16 kHz

Control range ... ± 12 dB

< Audio Section: Center >

Power Output

20 watts at 8 ohms from 20 Hz to 100 Hz.

Graphic equalizer

Center frequency ... 60 Hz, 150 Hz

Control range ... ± 12 dB

< Audio Section: Rear >

Power Output

20 watts per channel minimum RMS, both channels driven at 8 ohms from 20 Hz to 20,000 Hz.

< Video Section >

Input sensitivity/

impedance ... 1 Vp-p at 75 ohms

Output level/impedance

REC OUT ... 1 Vp-p at 75 ohms

Frequency Response*

(Monitor out) ... 5 Hz to 6 MHz/ +0 dB, -3 dB

Signal to noise ratio

(Monitor out) ... 65 dB

< General >

Power consumption ... 250 W

Dimensions ... W: 440 mm (17-5/16")

H: 127 mm (5")

D: 413 mm (16-1/4")

Weight (Net) ... 11 kg (24.2 lb)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige, Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the PX (U) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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